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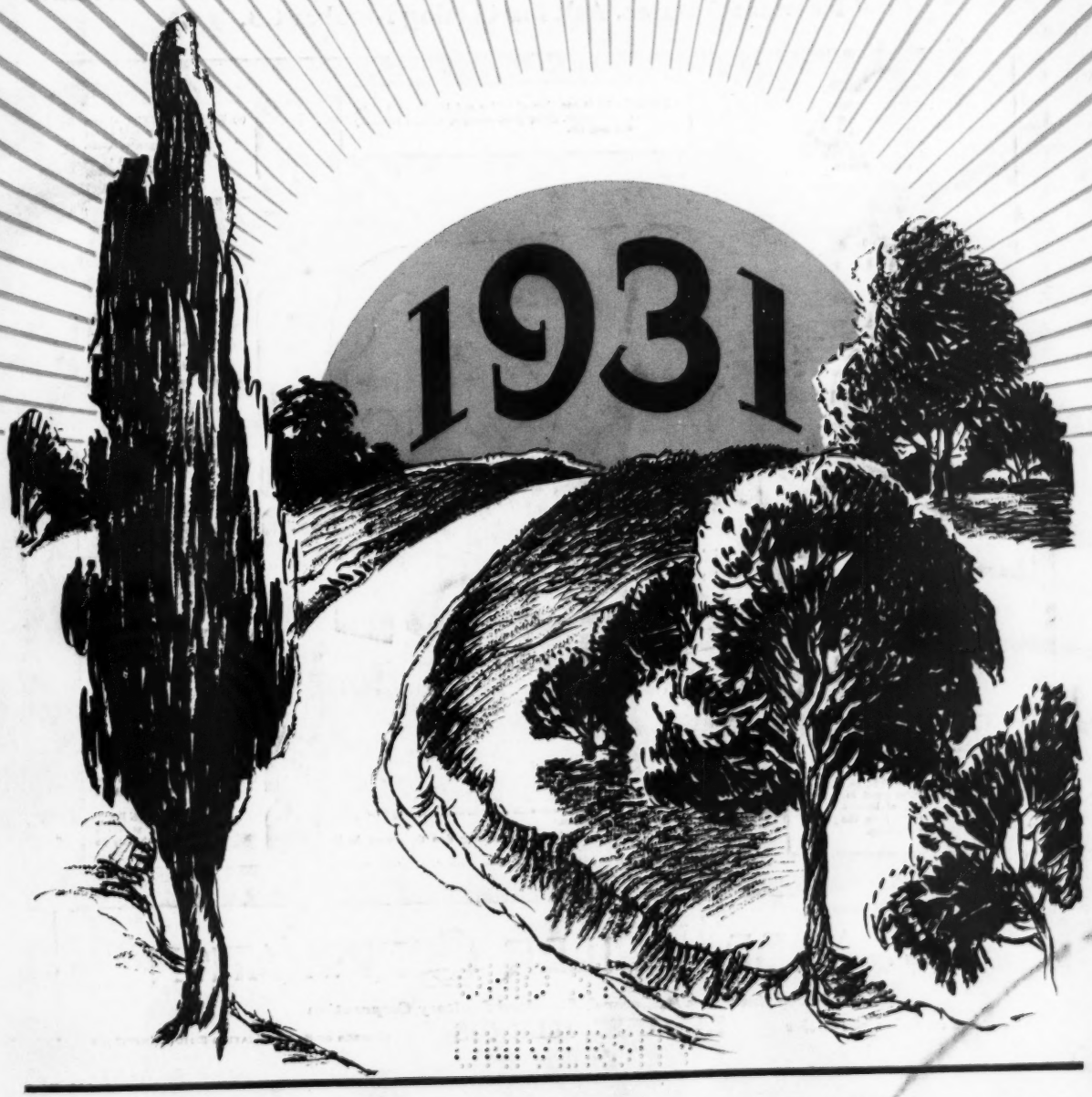
DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising



JANUARY 10, 1931

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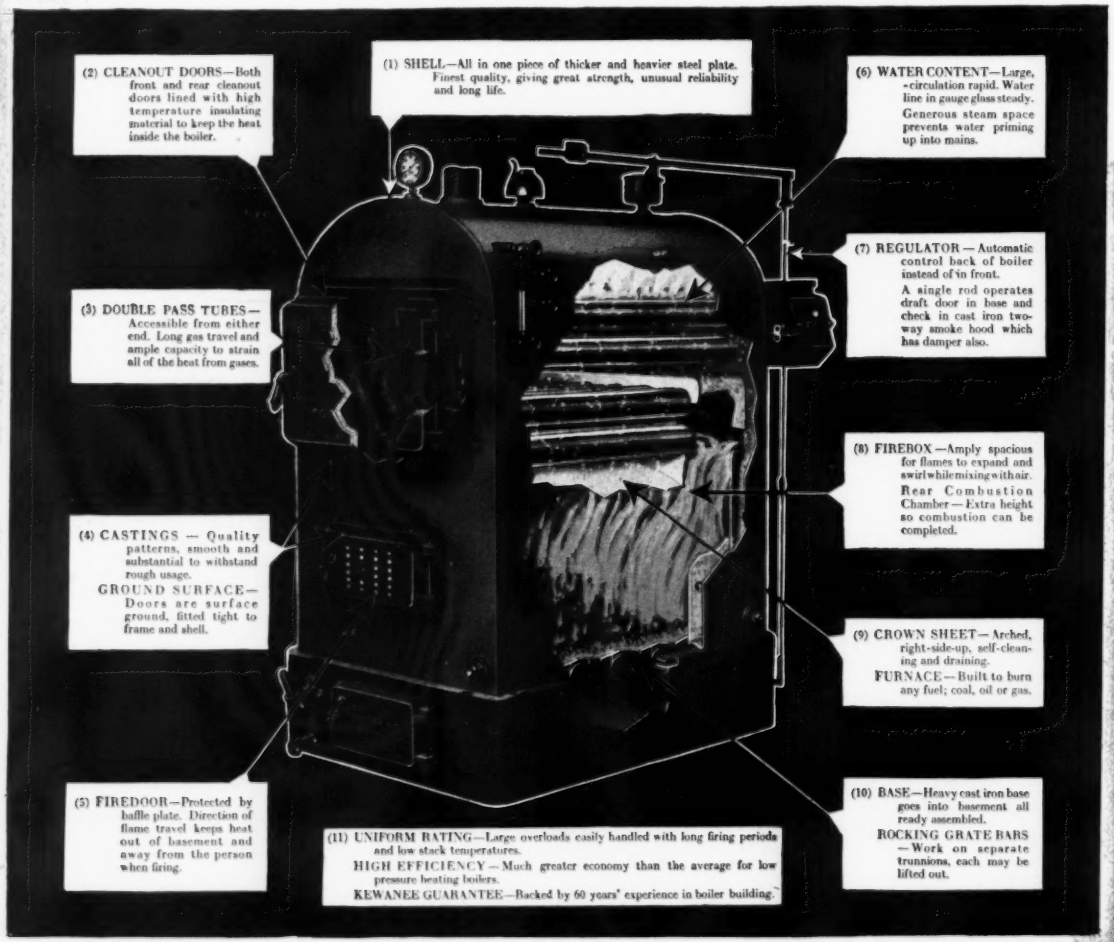
KEWANEE

Type "R" STEEL BOILER
for Smaller Buildings

COMPARE the new Kewanee Steel Boiler with any other small heating boiler made, and it is quickly seen that the buyer certainly *gets more* by investing in Kewanee. The sectional view shows some of the unusual Kewanee features. Ask for Catalog Number 88.


(2) CLEANOUT DOORS—Both front and rear cleanout doors lined with high temperature insulating material to keep the heat inside the boiler.
(1) SHELL—All in one piece of thicker and heavier steel plate. Finest quality, giving great strength, unusual reliability and long life.
(6) WATER CONTENT—Large, circulation rapid. Water line in gauge glass steady. Generous steam space prevents water priming up into mains.
(7) REGULATOR—Automatic control back of boiler instead of in front. A single rod operates draft door in base and check in cast iron two-way smoke hood which has damper also.
(3) DOUBLE PASS TUBES—Accessible from either end. Long gas travel and ample capacity to strain all of the heat from gases.
(8) FIREBOX—Amply spacious for flames to expand and swirl while mixing with air. Rear Combustion Chamber—Extra height so combustion can be completed.
(4) CASTINGS—Quality patterns, smooth and substantial to withstand rough usage. GROUND SURFACE—Doors are surface ground, fitted tight to frame and shell.
(9) CROWN SHEET—Arched, right-side-up, self-cleaning and draining. FURNACE—Built to burn any fuel; coal, oil or gas.
(5) FIREDOOR—Protected by baffle plate. Direction of flame travel keeps heat out of basement and away from the person when firing.
(11) UNIFORM RATING—Large overloads easily handled with long firing periods and low stack temperatures. HIGH EFFICIENCY—Much greater economy than the average for low pressure heating boilers. KEWANEE GUARANTEE—Backed by 60 years' experience in boiler building.
(10) BASE—Heavy cast iron base goes into basement all ready assembled. ROCKING GRATE BARS—Work on separate trunnions, each may be lifted out.

Tapped for Excelso Water Heater

KEWANEE BOILER CORPORATION

division of American Radiator & Standard Sanitary Corporation

Branches in Principal Cities KEWANEE, ILLINOIS MEMBER OF STEEL HEATING BOILER INSTITUTE

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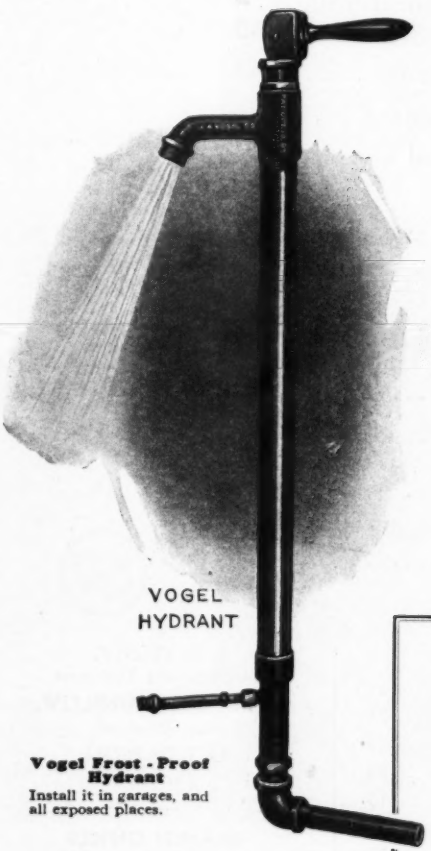
VOGEL PRODUCTS HAVE ALWAYS BEEN PROFITABLE FOR PLUMBERS TO HANDLE

The Vogel Hydrant is no exception and is becoming very popular



Vogel Frost-Proof Hydrant
Install it in garages, and all exposed places.

VOGEL hydrants are being installed in garages, railroad yards, mines, mills, factories, on farms, dairies, playgrounds and service stations.

People are learning to appreciate the convenience of having a supply of water outside which can never freeze, no matter how cold it may be.

And, as with all VOGEL products, you make a good profit on each installation.

Because of the size of the market your profits are up to you. You can make as much as you want. Write us for folders and blotters, imprinted with your name and address.

See inside back page for VOGEL Self Flush advertisement. Also see pages 122 and 123

COLDIE ADMITS THEY'RE TOUGH

Said Coldie to Frostie
"They're treating us rough
"As if Vogel Closets
"Weren't tough enough"
"But, boy, let me warn you
"I'm telling you straight
"This frost-proof hydrant
"Is certainly great"
"It's tough and it's strong
"As a son-of-a-gun
"With the same kind of valve
"As the Number One"
"So our chances of cracking
"A hydrant or two
"Are not worth a nickel
"Whatever we do."

JOSEPH A. VOGEL COMPANY,
Wilmington, Del. St. Louis, Mo.

VOGEL PATENTED *Frost-Proof* PRODUCTS

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DOMESTIC ENGINEERING

Plumbing & Heating Contracting and Merchandising

Established 1889

Vol. 134, No. 1 | January 10, 1931 | Whole No. 1934

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BRASS

WB Dependable Brass Products are made of finest materials under the policy of "We Sell the Retail Plumbing Trade Exclusively"

The ancient brass craftsman was just as critical of his handiwork as Wolverine brass-craftsmen. He too, knew work would last

For ages the value of brass has been determined by the skill of the workers who fashioned them. . . . . .

Skillful working of the metal gives brass products the lasting qualities that has always been considered the best reason for buying them.

Master Plumbers who insist on value when buying brass goods always choose WB Dependable Brass Products. . . . . .

WOLVERINE BRASS WORKS
Grand Rapids « « » » Michigan

WOLVERINE

Between Ourselves

THE greatest need in the plumbing and heating field is an accurate collection of standard cost figures so that each contractor may check his own books against those of others. It is, therefore, a real pleasure to be able to offer in this issue the statement of a successful plumbing and heating firm, with a careful analysis by a man thoroughly familiar with the whole building construction field.

Your Editor

THE figures as analyzed by the expert accountant show a comparison between two years. It is thus possible for the analysis to point out at just which points improvements in management were introduced, and other points where betterment is possible. The significant fact about the statement is that it shows a profit. Primarily this was due to a sizeable reduction in cost of material and labor on an increased business. The further reason for profit was in the fact that this firm does not bother about competitive jobs. In spite of this fact its volume is over the quarter-million mark. Such a situation is worthy of close study by contractors everywhere. As the accountant says, it shows that profits can be made with proper management.

IN the past, the method of selecting the number and arrangement of plumbing fixtures for large office buildings has often been governed by haphazard methods and in part by the past experience of those engaged in designing the building. Sometimes the desired results have been obtained, but not so in other cases. Thorough study has been given this important subject of late, with the result that it should now be possible to plan the fixture arrangement so as to meet all conditions. An engineer who has participated in the study of this subject gives some valuable and practical suggestions in an article in this issue. The author considers only the number and arrangement of the fixtures and offers some ideas that can be put to practical use.

HEATING contractors are familiar with the problems of condensation when gas heating equipment is in use. In an interesting and highly practical article in this issue, an engineer who is expert in gas equipment discusses the important bearing which chimney construction has on the matter of condensation. He describes the steps to be taken to forestall the effects of condensation which, under some conditions, will play havoc with the chimney. Linings for the chimney and their application are fully discussed for the information of heating contractors interested in gas heating.

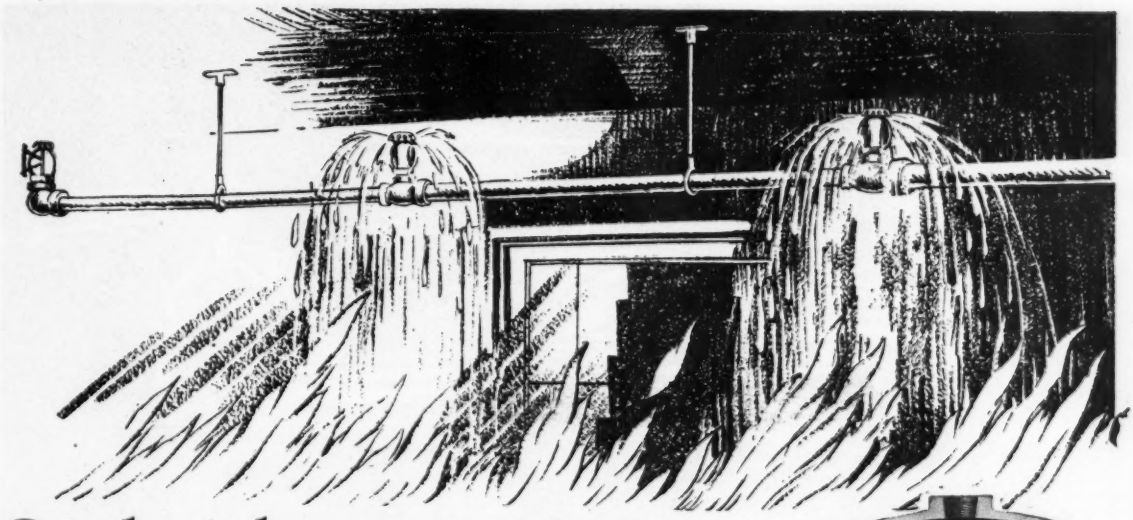
The man who is so busy that he does not have time to read his trade paper is like the man who was so busy chopping wood that he did not have time to sharpen his axe.

"DOMESTIC ENGINEERING is certainly a splendid trade paper and of untold value to all parties interested in this industry. It seems to the writer that your magazine gets better every year. At least the writer thinks it is more interesting."—Wm. B. Talbott, Vice President and Manager, Baker Mfg. Co., Kansas City, Mo.

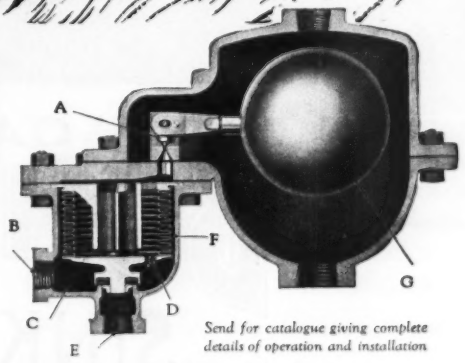
OVER a period of several months we ran, on the editorial page, a series of editorials outlining "the association's job." In this issue, in the "Plumbing and Heating Merchandising" section, we carry the stories of what several associations are doing in the way of merchandising the services of their members to the community in which they operate. Both heating and plumbing groups are represented in effective campaigns. In one case it is reported that the jobs done by association members since the beginning of the campaign has increased by 200 per cent.

A SPECIAL feature in this issue is the annual review of market conditions in the plumbing and heating industry, which will be found in the sepia section starting on page 133. The market on each of the major commodities used by the industry is reviewed for the year, and charts have been prepared in each instance to give a clear picture of the price trend and the course of shipments. At this season the business world is more or less flooded with reviews of general business, but this is the only one confined to plumbing and heating.

GOOD business management requires the comparing of your costs with the costs of others in the same line of business. In a study of costs, no element of business should be neglected. In plumbing and heating, the truck is an important instrument of service and its costs should be studied with a view to effecting economies. In our next issue we will present the figures gathered in an analysis of the use of motor trucks in business. We give the figures for all types of businesses, so that the costs in our own field may be compared with the general averages; also the figures for our own field, so that readers may compare these figures against their own.



On the job—*preventing* serious damage



Send for catalogue giving complete details of operation and installation

A sprinkler system is always on the job—ready for any emergency. Although the sprinkler *may never operate,* the need for protection, even in semi-fire proof structures, is universally recognized.

Likewise, low pressure heating boilers *may never need* the protection of a Webster Boiler Protector. But as long as there is the least chance that carelessness, priming due to improper piping, dirt, or fluctuating pressures, or failure of complex automatic devices *may cause* accidental low water and consequent burnt boiler, it is best to have protection *right on the job.*

Positive Protection Against Low Water

The Webster Boiler Protector has been designed especially to provide *positive protection* against the dangers resulting from accidental low water. Study the illustration. Note the following important features which *doubly qualify* the Webster Boiler Protector for this safeguarding duty.

The water inlet valve and operating mechanism are in a chamber *separate* from the float chamber. Low temperature prevails in this chamber at all times, reducing to a minimum the likelihood of precipitation of scale forming matter. This is further minimized by the fact that a *very small volume of water* passes through the operating mechanism. Under average conditions the amount of water is so small that even where mountain water, high in lime and magnesia, has been used in numerous test installations no difficulty has occurred.

Only one bearing in the entire mechanism—movement of all parts is very limited.

Non-corrosive materials throughout—all water valve parts keep cool at all times.

The entire mechanism is accessible and readily demountable for inspection.

Complete instructions for inspection and maintenance contained on name plate right on apparatus.

Rapid action due to enormous power and great capacity assures prompt restoration of water level with minimum change in water line and minimum addition of raw cold water. Usually the Webster Boiler Protector will complete its cycle of operation with only ¼″ to ½″ change in level.

For Every Type of Low Pressure Heating System

Webster Boiler Protectors are daily meeting with wider acceptance. A growing market is at every contractor's door. New as well as existing installations—vacuum, vapor and one-pipe jobs; coal, oil and gas burning jobs—all of them need the *positive protection* obtainable only with the exclusive features of the Webster Boiler Protector.

Detailed information and quotations on request. Write or phone today to nearest Webster Branch.

Cooperation

Warren Webster & Company will render every cooperation to heating contractors in promoting Boiler Protector business. Reprints of this and other advertisements, catalogs, Service Details and other material will be furnished on request.

Warren Webster & Company, Camden, N. J.
Pioneers of the Vacuum System of Steam Heating
Branches in 60 principal U. S. Cities—Darling Bros., Ltd., Montreal, Canada

P-5

The New Webster Boiler Protector

CAPITOL BOHN-910 SINK FIXTURE

Here is a sink fixture that combines utmost utility with rare good looks—worthy of a place in the finest home.

It is obtainable in two types. In chrome-plate with china soap dish and china handles, or in chrome-plate with metal soap dish and metal handles.

Both are made with 8" centers and are obtainable at the same price with either female eccentric, or male adjustable couplings.

They are precision-made throughout and in keeping with those manufacturing standards which distinguish the entire Capitol line.

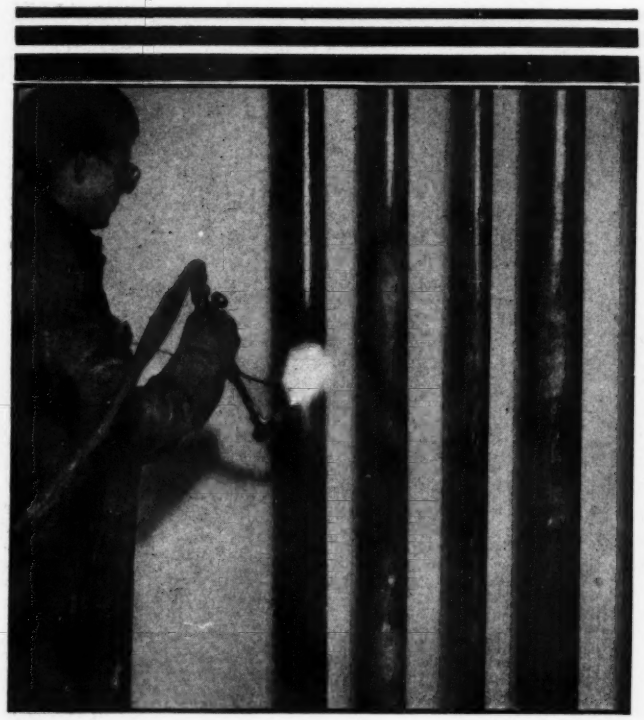
Displayed and furnished by the better plumbing supply houses and plumbing contractors throughout the country. If there is not a dealer near you, write to us.

Bohn Aluminum & Brass Corporation

CAPITOL BRASS DIVISION

MANUFACTURERS OF BRASS VALVES, BOILER TRIMMINGS AND PLUMBERS' BRASS GOODS

DETROIT~MICHIGAN



ELIMINATING THE WEAK SPOTS

A pipe installation is as strong as its weakest joint. Before the introduction of oxwelding, the joint was the weak spot in any pipe installation. It was at this point that leaks and breaks always occurred.

There are no weak spots in an oxwelded pipe installation. It is uniformly strong and leakproof throughout its entire length. The strength of the oxy-acetylene joint is equal to that of the pipe wall, and will last as long as the pipe itself.

Dependability of oxwelded piping has led to its installation in modern homes throughout the country. Progressive contractors are recommending it—thoughtful owners are choosing it for long and trouble-free service.

THE LINDE AIR PRODUCTS COMPANY

Unit of Union Carbide and Carbon Corporation

General Offices · Carbide and Carbon Building, New York

68 Linde Oxygen Plants
51 Prest-O-Lite Acetylene Plants
175 Oxygen Warehouse Stocks

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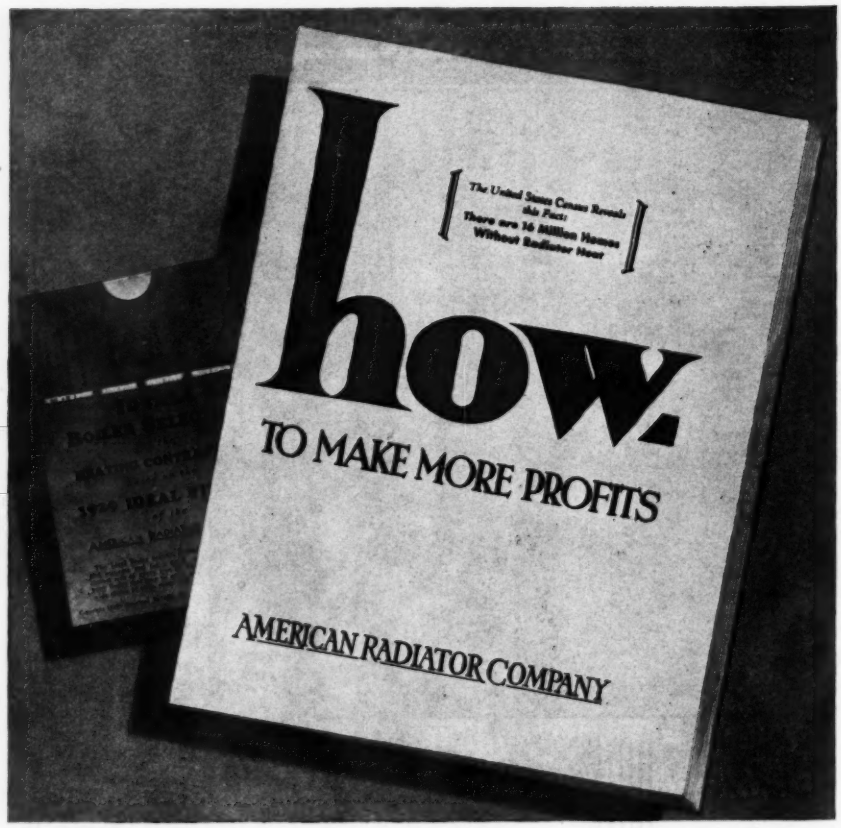


Here is the way to get business

NOW . . .

Every Thursday night we are broadcasting the story of modern heating from coast to coast. Listen in and learn how we are helping to make sales Now.

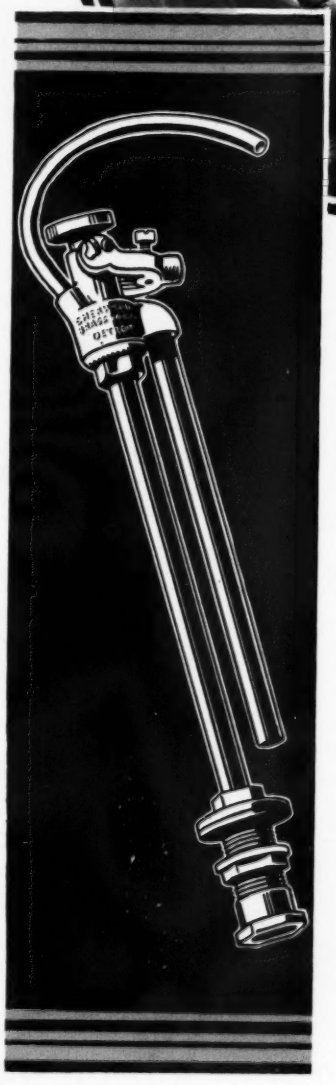
If this is the time to buy it is certainly the time to sell. And we can help you. The "How" book shown above has helped many hundreds of contractors, and it can help you too. Write us for a copy. And if you are not already using the "Boiler Selector" we'll be glad to send you one of those.

Cash in on our national program to educate people to install modern heating now. Show your prospects how the radiators and piping can be installed and the boiler set up without disturbing the old system. Explain to them that then it takes only about two hours to disconnect the old plant from the chimney and connect the new boiler.

That is the message we are telling them. And that is the way to make sales for you right now instead of later—when warm weather gets here.

AMERICAN RADIATOR COMPANY
DIVISION OF
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
40 West 40th Street, New York

This might as well be YOU!



The new building let-up has not stopped the plumbers who want to get business. Here's how many of them are doing it:

They're taking a Sherwood Ball Cock and calling on their customers and prospects, asking if the toilet tank is noisy, leaky or whistling. They're finding plenty that are and they're installing Sherwood Ball Cocks to correct this annoyance.

While they're in the house then, they make use of the opportunity to check over all of the plumbing. As a result, they're selling new faucets, new fixtures, new wall accessories, new kitchen sinks, new piping—everything from a new washer to an entire new plumbing outfit.

Many are also selling heating appliances—water heaters and the like.

But they're using this one source of entering, the Sherwood Ball Cock. Even if they sold no more than the ball cock, they'd make a substantial profit on that.

YOU might as well be in the remodeling picture. People *have* got money and they *are* spending it if you go to them and suggest that they spend it. Why not start *now*? Order a Sherwood Ball Cock from your jobber *today*.

Alexoid
RED BAND

Where water conditions are below normal and where they take a toll in wear from ball cocks, install the Sherwood Red Band (Alexoid) Ball Cock. It has been designed to meet the worst conditions in the best manner and is but slightly higher in price.

SHERWOOD BRASS WORKS

Jefferson and Mt. Elliott Aves. » » DETROIT, MICH.

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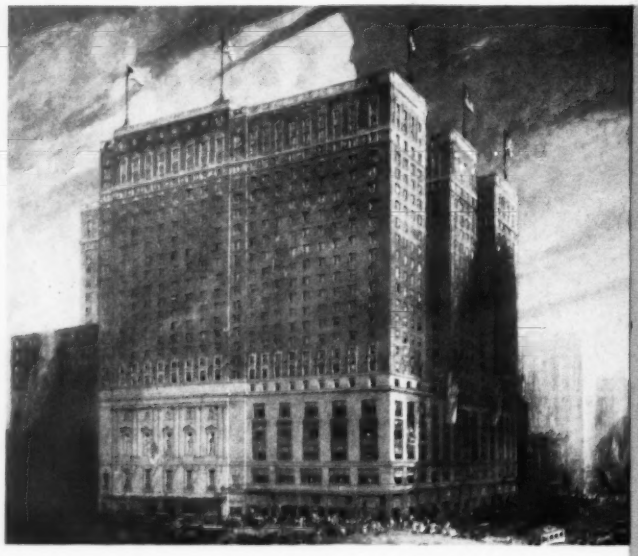
Fred G. Hoffman, 831 Edgewood Ave., Trenton, N. J.
Fred S. Wilsey, Plymouth Bldg., Minneapolis

SHERWOOD Ball Cocks

TANK REGULATORS

THE PALMER HOUSE, CHICAGO, ILL.



Architects
Holabird & Root

Heating Contractor
Phillips-Getschow Co.

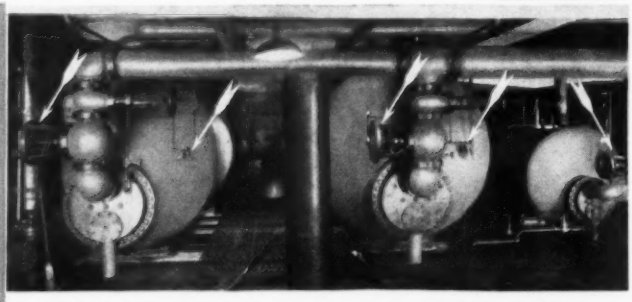
Plumbing Contractor
J. J. Daly

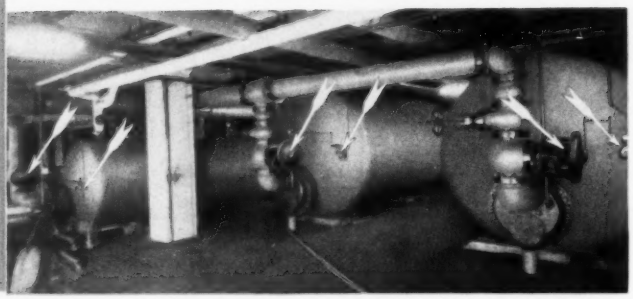
Here is another prominent hotel using Powers Regulators to control the temperature of its hot water supply. Long Life—Dependable control—Prompt and intelligent service by engineers in 38 cities—these are some of the reasons for the popularity of Powers products.

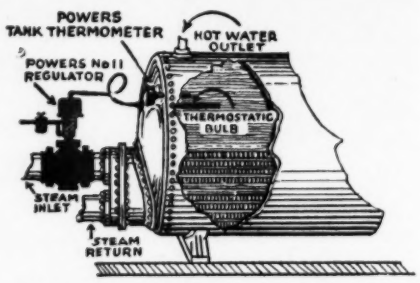
Powers No. 10 Regulators

Compressed Air Operated

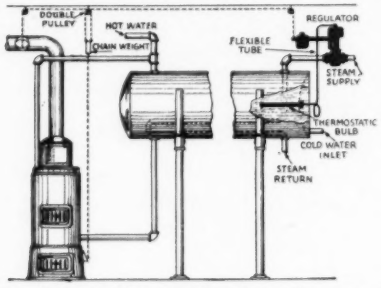
Installed on Hot Water Heaters in the Palmer House



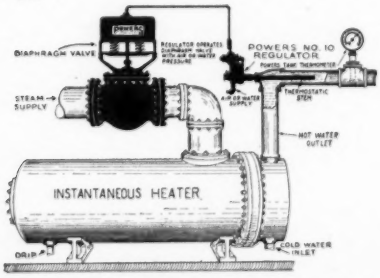




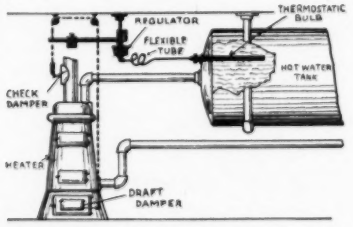
The Powers No. 11 Regulator applied to steam heated hot water tank. Self operating—accurate and durable. *Write for Bulletin No. 2035.*



The Powers No. 12 Regulator for controlling steam coil and auxiliary heater. *Write for Bulletin No. 2035.*



The Powers No. 10 Regulator operated by either compressed air or water pressure for control of large valves, swimming pool heaters, etc. *Write for Bulletin No. 2035.*



The Powers No. 13 Regulator for hot water tank heaters and garbage burners. *Write for Bulletin No. 2035.*

THE POWERS REGULATOR COMPANY

35 years of specialization in temperature control

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General Offices and Factory
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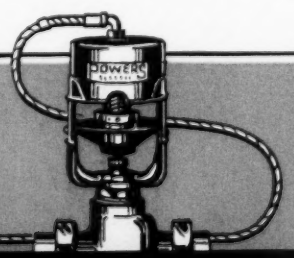
POWERS



THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

A Letter from Harry G. Nye

January 10, 1931.

To the Plumbers and Steamfitters of the U. S. A.

Us and Other Animals

Friends:

I have always been interested in animals, and animals have always been interested in me. On a fishing trip once I was chased half a mile by a bear. The bear turned out to be a farmer's Newfoundland pup, but that didn't take any of the thrill out of it. The pup just wanted to have a little fun with me, and he did.

Dogs have always liked my company, and what the dogs had. One summer there was a calf that used to follow me around wherever I went. That was the year of the big drought, when there was hardly a green thing on the farm.

So I know something about animals. Even as a child my parents used to take me to the circus and show me the animals, or show the animals me.

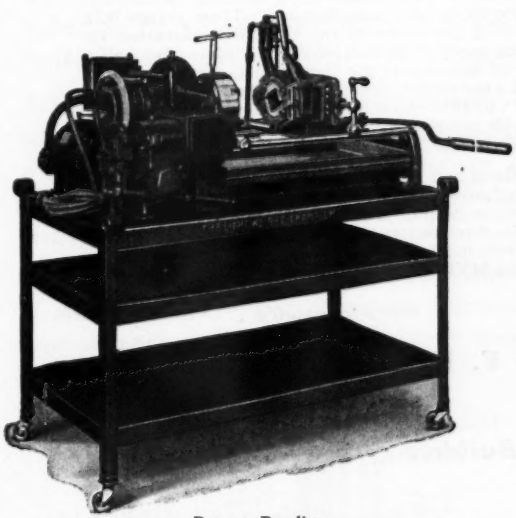
I always liked the tigers, and made one once out of a stray yellow cat. The cat didn't think much of it, and hid in the wood lot, but Dad found her, and then the neighbors found Dad, and then Dad found me. He said I would never make another tiger, and I decided I never would. I have never cared for them since, although there are several blind ones in our fair city.

We had to say "please pass" at our house, and I used to wish I had the giraffe's reach. I have even envied him his neck at baseball games since.

But it was all good training for the pipe tool business. It is probably the reason why Nye Tools take hold like a tiger, skip through pipe like a gazelle, and have the power and long life of any elephant. Give yourself a show with Nye Tools.

Faithfully yours,

Harry G. Nye



Patents Pending

"THE LIGHTWEIGHT CHAMPION"

Threads—Cuts Off and Reams

Capacity ⅛ to 2 Inches

Furnished with either A. C. Motor, Universal Motor or Gasoline Engine

OTHERWISE KNOWN AS

THE NYE TOOL & MACHINE WORKS

4120-30 Fullerton Avenue :: Chicago

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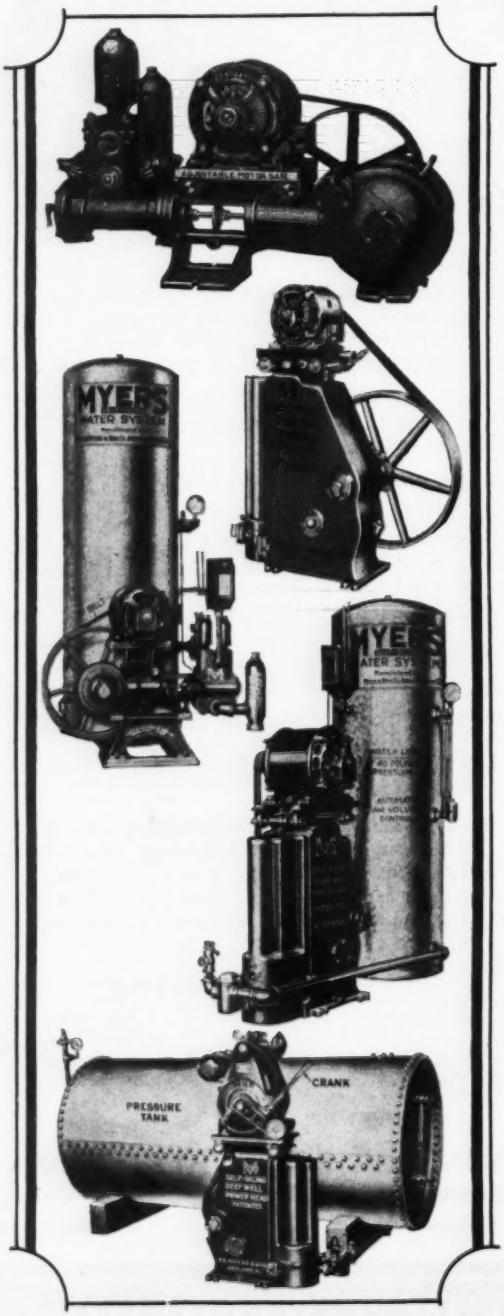
THE CELEBRATED SKIP TOOTH DIE
(Genuine Nye)
REG. U. S. PAT. OFFICE

MYERS



The Biggest Name in WATER

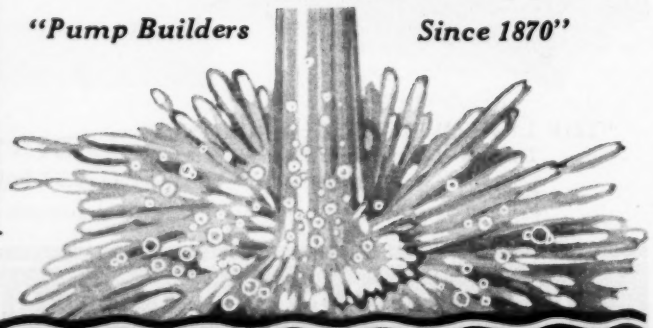
SIZE alone is no assurance of merit. The MYERS factory—largest of its kind in the country. The MYERS line of Pumps and Water Systems—most complete offered by any manufacturer. These things bulk small—when placed beside the MYERS *reputation* for producing goods of utmost reliability. More than half a century of devotion to the highest manufacturing standards. A fixed resolve—ever since the first MYERS Pump was built in 1870—to furnish water users with absolutely dependable equipment. THAT is the vibrant force which has made MYERS *the biggest name in water.*

Hand and Power Pumps for domestic and industrial use; complete Water Systems for either deep or shallow wells; Spray Pumps for every variety of service—MYERS makes them in all needed sizes and capacities. And the MYERS name guarantees their quality.

Write for catalog.

THE F. E. MYERS & BRO. CO.
Ashland, Ohio

"Pump Builders Since 1870"



PUMPS FOR EVERY PURPOSE

METAPHRAM
DAMPER REGULATORS

For Maximum Combustion Efficiency

One reason for the high efficiency of gas, oil or stoker-fired heating boilers is *automatic combustion control* to produce uniform boiler output.

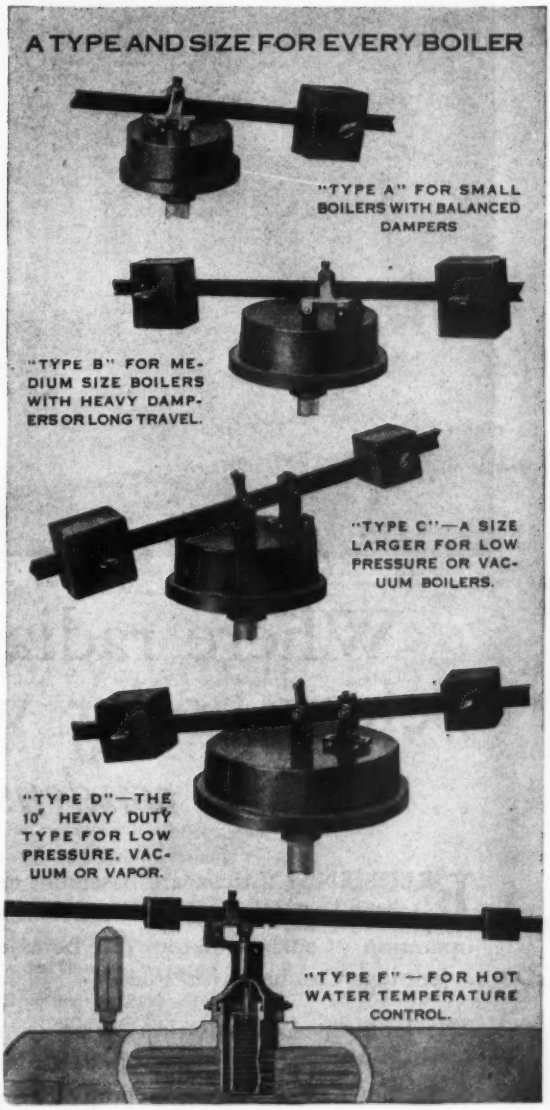
Install a properly balanced damper regulator on a hand fired boiler, adjust it to the point of desired boiler delivery, and combustion efficiency will be equal to the finest mechanical installation—lacking only the convenience of automatic firing.

The average heating contractor has a hundred service possibilities on hand fired boilers to one prospect for stoker, gas or oil.

And—while METAPHRAM Damper Regulators can't provide the convenience of automatic firing, they will insure combustion efficiency and convenience to the limit of hand firing possibilities.

There is a type and size for every domestic heating boiler—steam, vapor, vacuum or hot water; at a price that every heating system owner can afford.

NATIONAL REGULATOR CO.
2317 Knox Ave., Chicago

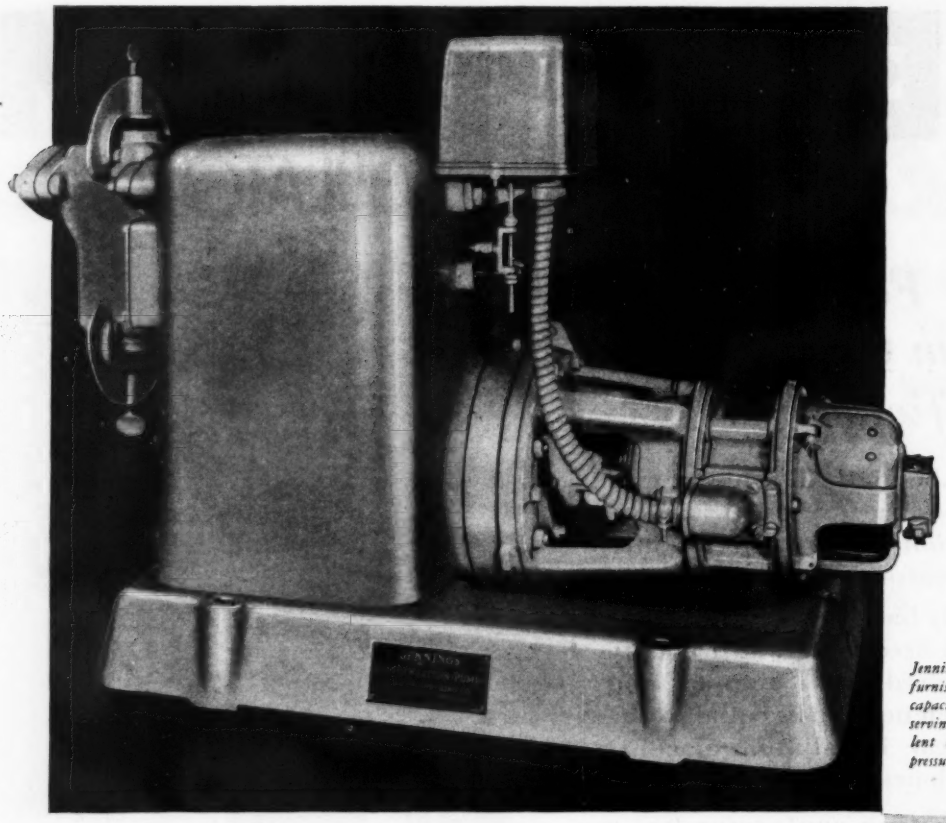

A TYPE AND SIZE FOR EVERY BOILER
"TYPE A" FOR SMALL BOILERS WITH BALANCED DAMPERS
"TYPE B" FOR MEDIUM SIZE BOILERS WITH HEAVY DAMPERS OR LONG TRAVEL.
"TYPE C"—A SIZE LARGER FOR LOW PRESSURE OR VACUUM BOILERS.
"TYPE D"—THE 10" HEAVY DUTY TYPE FOR LOW PRESSURE, VACUUM OR VAPOR.
"TYPE F"—FOR HOT WATER TEMPERATURE CONTROL.

NATIONAL
National Systems of Heat Regulation and Humidity Control, Metaphram Dampers, Metaphram Motors, Industrial Thermostatic Devices, A-Jacks Steam Damper Regulator for high pressure boilers, Metaphram Damper Regulators for domestic steam, vapor, vacuum and hot water heating boilers, Metaphram Furnace Regulators.
METAPHRAM
NATIONAL Type F METAPHRAM
NATIONAL METAPHRAM

NATIONAL REGULATOR CO.,
2317 Knox Ave., Chicago
Please send us

- ☐ Bulletin F-100—Type F Metaphram Damper Regulator for hot water boilers.
- ☐ Bulletin LP-100—Metaphram Damper Regulators for low pressure boilers.

Name.....
Address.....
Town..... State.....



Jennings Condensation Pumps are furnished in standard sizes with capacities of 4 to 200 g. p. m. for serving up to 150,000 sq. ft. equivalent direct radiation. Discharge pressures up to 60 lbs. Write for Bulletin 99.

Where radiators are below boiler water line

. . . use this condensation pump

FREQUENTLY there are basement radiators which must be set below boiler water line. When this problem arises, efficient operation of such radiators can be assured by the installation of a Jennings Condensation Pump.

The Jennings Condensation Pump is specially designed for this service. Automatically controlled, it receives the condensation and delivers it to the boiler, keeping the system always free of water.

Simply and sturdily constructed the Jennings Condensation Pump will give years of trouble-free, economical service. Occasional lubrication and packing are the only attention it requires. Nash Engineering Company, 41 Wilson Road, South Norwalk, Conn.

USE THIS ENGINEERING SERVICE

Nash representatives are pump specialists. They can give you valuable assistance in working out plumbing and heating problems. Feel free to call on them at any time for engineering information or data. Ask them about the new Jennings Sump and Sewage Pumps.

Jennings Pumps

MARSH

presents . . truly modern One Pipe Vacuum Heating

These Marsh Matched Units are specially designed to bring the advantages of vacuum heat to the thousands of homes, apartments and small office buildings in which it is desirable to install one pipe heating systems. Graceful, modern lines and a highly polished chrome finish make these units as attractive in appearance as they are efficient and economical in operation. Equally adaptable either for new buildings or for remodeling existing structures, they will repay their slight initial cost many times in reduced fuel bills.

See our catalog in Sweet's Engineering, Volume D, Pages 5601 to 5690

JAS. P. MARSH & CO.

(Division of Commercial Instrument Corporation)

HOME OFFICE:

2079 Southport Ave., CHICAGO, ILL.

Sales Offices in principal cities

551 Fifth Ave., New York City
Bendix Building, Los Angeles, Calif.

2539 Pennsylvania Ave. N. W.
Washington, D. C.

Marsh System Units

~~Wishing~~ MAKING A Prosperous 1931

Wishing a happy and prosperous New Year is fine. But going ahead and MAKING it a good year, is much better. Many heating contractors *increased* their business and profits last year by selling Spencer Heaters as replacements. In an off year for the industry more Spencer Heaters were sold than in 1929, our previous best year. We are planning for a still better year in 1931. You can too.

Your Best Prospects

are home or building owners with antiquated heating plants. Tell them of the economy and efficiency of Spencer Magazine Feed Heaters—and you will increase your sales and profits, regardless of the new building market.

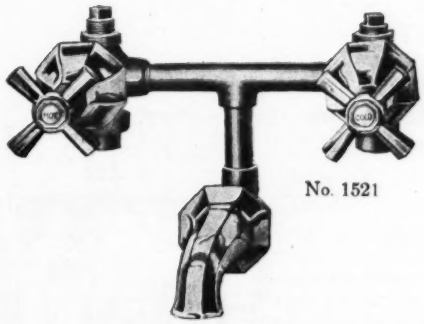
FURTHER REDUCTIONS IN SPENCER HEATER PRICES

Now make it still easier for you to get this replacement business in 1931. These new lower prices are not only the result of last year's increased Spencer sales. They anticipate even greater production and sales this year. Because more and more heating contractors are going to stop "figuring heating jobs"—and Sell the advantages and savings of Spencer Automatic Heat.

SPENCER
Magazine Feed
HEATERS
for steam, vapor or hot water

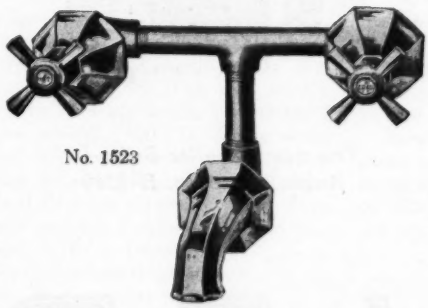
Spencer Heater Company, Williamsport, Pennsylvania
Spencer Heater Company of Canada, Ltd., Toronto, Ont.

American's Art Line reaches new heights



No. 1521

No. 1510



No. 1523

BOTH in construction and appearance, American's Art Line of bath fixtures have attained new heights. The advantage of constant study of brass goods problems and scientific steps toward their solution have put American brass products ahead in design and construction.

Study the lines of the fixtures illustrated. Just as you learn to expect certain companies to give you something just a little better, just a little more exclusive than the ordinary run of things, so have numerous contractors, architects and builders come to expect the unusual in American.

They are never disappointed either in performance, installation or in appeal to tenants and buyers. Write today for full information on the American Art Line if your jobber cannot give you this data.

American Sanitary Mfg. Co.

Abingdon . . . . . Illinois

Many exclusive features in this new built-in angle valve

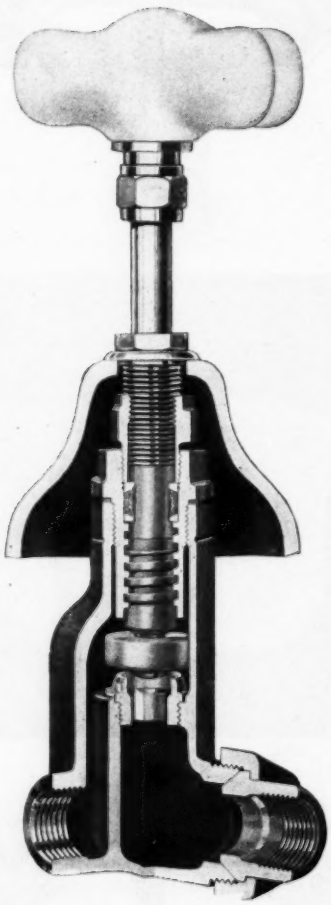
Superior Mueller design and workmanship again evident

The new Mueller Built-In Angle Valve will be giving more than satisfactory service long after the building itself is in need of repairs! There is nothing to wear out, since no wearing parts touch the valve body.

The casting is of heavy, red bronze with an unusually fine, non-porous texture. The seat is renewable although hardened with chromium plating for many years of perfect service. Sleeve, also renewable. There is no thread wear on the body. The stem is of the swivel disc type and measures 15/32″ in diameter. Four full threads on the stem, combined with a larger bearing surface, mean longer valve life. The waterway through the valve, including the seat, has a greater capacity than half-inch pipe.

Snug connection to any wall is assured by a liberal escutcheon adjustment. The finished wall line is marked on every valve, making it easier to rough in. Old style screws with their wobbly handles, are eliminated. Handle spud is slotted to permit tight wedging to stem with lock nut.

An examination of the fine workmanship on this new angle valve will convince you that it is typical of the quality for which the name MUELLER has been famous for seventy-three years. Write for complete information today. MUELLER CO., (Established 1857), Decatur, Illinois. *Branches:* New York, Dallas, Atlanta, San Francisco, Los Angeles. *Canadian Factory:* MUELLER, Limited, Sarnia.



The new Mueller Built-In Angle Valve No. H-5360

MUELLER

PLUMBING BRONZE AND VITREOUS WARE

Poor Old Uncle Sam ..he's "Busted Again!"

TIME: December, 1930, A. D.

PLACE: An eating-house in a famous European city.

FIRST CITIZEN: "Speaking of hard times, have you heard the latest? I understand Uncle Sam is busted—dead broke. It must be awful—all their movie shows closed up—nobody driving their nice cars—blue grass actually growing in the streets of New York and Chicago—people begging on every corner.. so I hear."

SECOND CITIZEN: "Well, sir, you may not believe it, but I'm not surprised. I've been saying for ten years that those Americans couldn't last. Really, their luck held out longer than it should have. Well, it's too bad!"

FIRST CITIZEN: "Gosh! How awful *everybody* over here will feel about it!"

Remember 'way back in 1837 when Uncle Sam went broke?

Remember the dark days of the Civil War, when American business went to the demnition bow-wows?

And in 1873, when Samuel took it again "right on the nose"?

Not to forget 1893-4, when corn sold at 30 cents and laboring men worked for $1.10 a day; when General Coxey marched on Washington, D. C., with his Army of Unemployed!

Remember the fall of 1907? Remember how real money just *disappeared?* How we took our week's wages in clearing-house certificates?

How about 1920-21? Those were dismal days, with commodity prices falling like a plummet; with the Federal Reserve straining every fibre to save our big banks and their customers; with a twenty-five-billion-dollar war debt on our hands. And now, as we enter 1931, we find poor old Uncle Sam down and out . . . he's broke once more.

True, our banks have plenty of money; interest rates are low.

True, we have twenty-three million cars running around the streets.

True, the moving-picture shows are packed, day and night; a crowd of sixty to eighty thousand people at a football game is just an *ordinary* affair.

True, our savings bank deposits have grown to 20 billion dollars. All deposits total 55 billions.

True, we are able to pay off our war debts to the tune of a billion dollars a year.

True, we have five times as many boys and girls in college as we had twelve years ago.

Nearly a million electric refrigerators will be bought by American housewives this year at a retail value of $250,000,000. That's almost 60 per cent ahead of 1929.

Over 95 per cent of our people are eating three square meals a day—living in comfortable homes—homes which in most cases enjoy luxuries unknown to Royal Monarchs of thirty years ago.

But let us not argue. If our foreign friends *say* Uncle Sam is broke, that settles it.

No doubt Uncle Sam will go broke in the same way some twenty years hence. Seems sort of a habit with the old fellow.

But one thing we observe: He never gets discouraged. Each time he forges ahead and piles up more "jack" than ever before. Nor does he pinch and squeeze his money even in *hard times.* On the contrary, he always lives in reasonable comfort, as becomes a gentleman. Poor old Uncle Sam . . . he's busted again!

Throw away your pencil sharpener and get a gun. Go out gunning for business with Weil-McLain Boilers and Radiators. They are loaded with selling features.

Weil-McLain
SCIENTIFIC COMBUSTION
BOILERS

© 1931, W-McL.

FIGHT FUEL WASTE AND DELIVER MORE HEAT

WEIL-McLAIN COMPANY · · · *General Offices* · · · Chicago, Illinois
Boiler Plant and Offices: Michigan City, Ind. *Radiator Plant and Offices:* Erie, Pa.

Mueller **STREAMLINE** Hard Copper Pipe and Fittings Have Many Advantages for A Heating Installation

RADIATES LESS HEAT

A Mueller **STREAMLINE** Copper Pipe and Fitting installation radiates very little heat. In fact, nine times less than other materials commonly used for the purpose and in hot water lines, steam lines, etc., can very often be advantageously used without insulation.

CORRESPONDINGLY SMALLER PIPE SIZES CAN BE USED

The waterway through **STREAMLINE** pipe and fittings is uniform and smoothly recessed, resulting in an uninterrupted flow. This quality, together with freedom from clogging rust and smooth interior of the pipe, cuts flow resistance to a minimum. These features make it practical to reduce the pipe sizes on the plans at least one size throughout.

REQUIRES LESS SPACE

A Mueller **STREAMLINE** installation is not connected by either threading or flaring, consequently no room is required for wrench grip. It may be placed close up to walls, partitions and ceilings.

COSTS LESS

Mueller **STREAMLINE** Hard Copper Pipe and Fittings costs you less than any other non-ferrous material for the purpose. It gives your customer a better job and a permanent one.

HERE IS SOME VALUABLE INFORMATION FOR USE ON YOUR HOT WATER HEATING JOBS

The smooth uninterrupted interior waterway and non-clogging properties of **STREAMLINE** pipe and fittings permit the use of the following sizes of radiator connections for gravity hot water heating:

Copper Pipe Sizes	First Story	Second Story
3/8″	0-25 sq. ft.	0-30 sq. ft.
1/2″	26-60 sq. ft.	31-90 sq. ft.
3/4″	61-100 sq. ft.	91-125 sq. ft.

The size of mains must be equal to or larger in cross section than the area of all the branches; workmanship must be first class and adjustable radiator valves must be used.

Mueller Brass Co.

Port Huron, Mich.

Three Generations of Brass Making

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

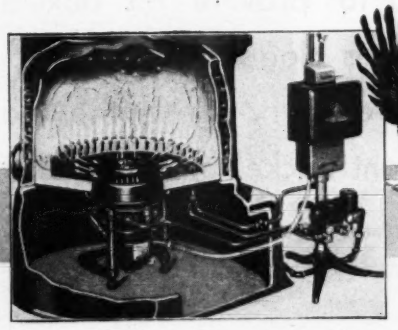
Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

Patent 1,770,852
Patent 1,770,502
Other Patents Pending

AGAIN

SILENT AUTOMATIC LEADS



1930 . . . Another Year of Outstanding Success . . .

"Our position of world-leadership was maintained . . . and *strengthened* . . . largely by the unusual sales record established in 1930 by our *successful dealer organization.* Many new dealers were added during 1930 . . . and we swing into 1931 in a *stronger position* than ever before in our history."

Walter F. Tant
President, Silent Automatic Corporation

In Production, Sales and Installations

Through the untiring effort of its dealers, Silent Automatic *won* world-leadership in 1929 . . . and *held* this position, even in 1930. For *two successive years,* "Silent" has been *first* . . . in production, sales and installations.

To the Silent Automatic dealers whose splendid cooperation and outstanding sales records have made this leadership possible, we desire to express our sincere appreciation . . . and pledge ourselves to do everything within our power to increase the success of every dealer during 1931.

For Warm Air, Steam and Hot Water Heating Systems— Old or New Homes

SILENT AUTOMATIC CORPORATION
12001 East Jefferson Avenue Detroit, Michigan

SILENT AUTOMATIC
THE NOISELESS OIL BURNER
(375)

Made by the World's Largest Producer of Domestic Oil Burners

Announcing the Josam Non-Clog Floor Drain—*triple drainage* . . . Designed to provide an auxiliary means of drainage when the main waterway is clogged . . . Sixteen holes in the auxiliary rim provide adequate carry-off to the main outlet and act as a "telltale" when the sediment bucket needs cleaning.

•

This latest addition to the Josam line of sanitary specialties eliminates the grief caused by flooded floors in all structures where water, oil and sediment must be drained. This Non-Clog Drain Series 960 NC exemplifies the engineering analysis that Josam is making of the sanitary specialty market to broaden the scope of the plumbing contractor's service. Complete information sent upon request.

Above: Josam Roof Drain with Removable Combined Dome Strainer and Sediment Cup.

Above: Josam-Marsh Shark Absorber. Left: Josam Adjustable Closet Outlet Connection.

Above: Josam Open Seat Back Water Sewer Valve

Above: Josam-Marsh Grease Interceptor

We will welcome inquiries regarding the use and installation of the Josam Products listed below from Catalog G: Josam Drains for Floors, Roofs, Showers, Urinals, Garages and Hospitals; Josam Swimming Pool Equipment, Josam-Marsh Grease, Plaster, Dental and Surgical, Sediment and Hair Interceptors; Josam-Graver Floor-Fed, Gas-Fired Garbage and Rubbish Incinerators; Josam Open Seat Back Water Sewer Valves; Josam Open Seat Swing Check Valves; Josam Adjustable Closet Outlet Connections and Bends, Water and Gas-Tight.

Josam TRADE MARK REG. PRODUCTS
STANDARD OF AMERICA

JOSAM MANUFACTURING COMPANY
4904 Euclid Building · · Cleveland, Ohio
FACTORY: MICHIGAN CITY, INDIANA
BRANCHES IN ALL PRINCIPAL CITIES

JOSAM PRODUCTS ARE SOLD BY ALL PLUMBING & HEATING SUPPLY JOBBERS

THERE ARE NO SUBSTITUTES FOR JOSAM PRODUCTS

JUMP INTO THIS

Too big and too tough to be captured in the test tubes of scientists is Time, that truthful old tester of everything in this world. Again and again he laughs at . . . and upsets . . . the calculations of those who try to judge the length of life of pipe by accelerated methods.

No laboratory walls can hold . . . no instruments can measure . . . the multitude of mighty forces which Time commands in the tests of ACTUAL SERVICE. That's why leading engineers agree that the only true measure of pipe longevity is life.

In the tests of Time, Reading Genuine *Puddled* Wrought Iron Pipe has proved beyond question its longer life; Reading 5-Point Pipe installed twenty . . . thirty . . . forty and more years ago is still good today! Buy the pipe that Time has *fully* tested—you are *sure* of pipe dependability with Reading Genuine *Puddled* Wrought Iron Pipe.

5 POINT PIPE READING GENUINE PUDDLED WROUGHT IRON

Use only Reading 5-Point Nipples with Reading 5-Point Pipe . . . . you'll know them by the indented band, midway between the threaded portion.

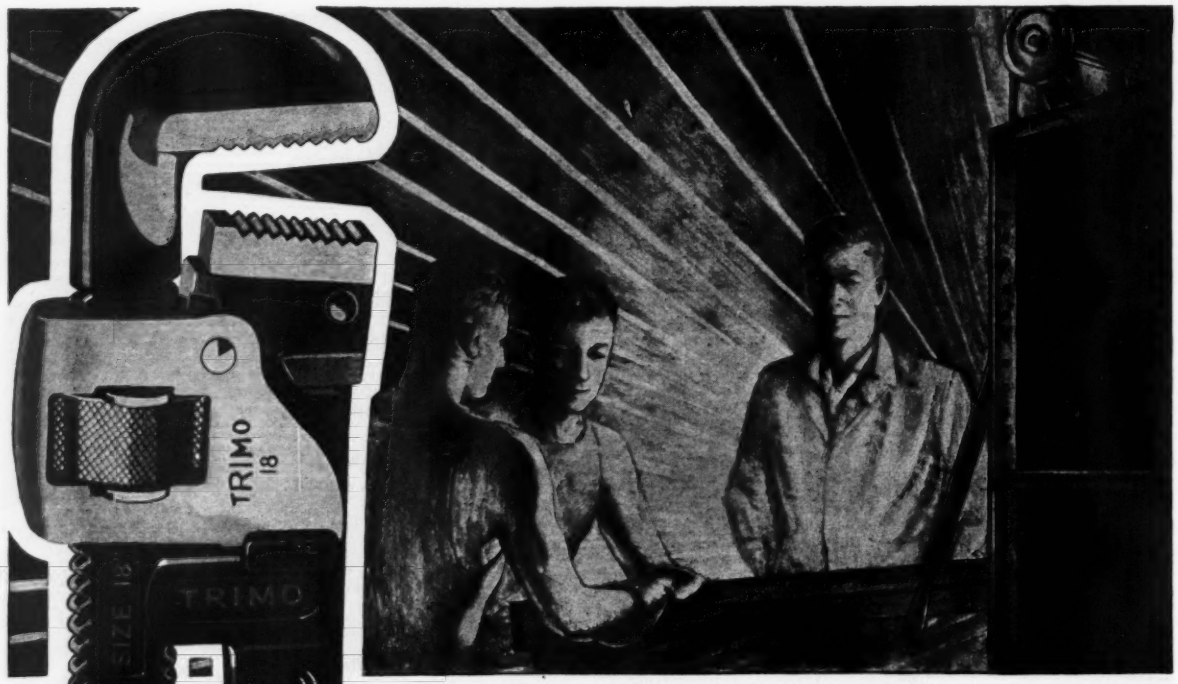
For Your Protection This Indented Spiral Forever Marks All READING PIPE

READING IRON COMPANY, Reading, Pennsylvania

GENUINE PUDDLED WROUGHT IRON READING · PIPE

DIAMETERS RANGING FROM ⅛ TO 24 INCHES

Science and Invention Have Never Found a Satisfactory Substitute for Genuine Puddled Wrought Iron



HEAT TREATED

by men who know how

THE best plumbing tools made couldn't do a good installation job unless the men behind them knew their use. Nor could the most modern heat treating equipment produce the untold strength of the TRIMO pipe wrench without the skill and experience of trained workers.

The makers of TRIMO have acquired the latest and best in heat treating equipment. And in 40 years of wrench making they have built up a personnel of experts who know every problem and pitfall of pipe wrench manufacturing. Heat treating, like every other manufacturing process at this plant, is done by men who know how.

ALL STEEL TRIMO PIPE WRENCH

Handle drop forged --- not cast

Made by

TRIMONT MFG. CO., INC.

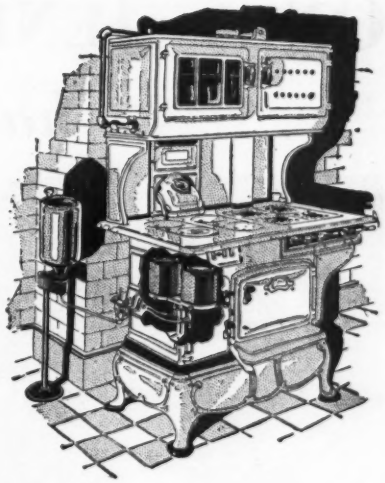
ROXBURY (BOSTON), MASS.

PROGRESS during the year 1930 certainly is evidence of an exceptional product and a sound merchandising policy.

SILENT GLOW attained this standard.

420 dealers added during the first eleven months of 1930.

Less than 1% dealer turnover.



THE PRODUCT

Some of its exclusive features:

Patented Deflector Rings

Insuring even fire at all times.

Definitely eliminating shell warpage.

Patented Self Cleaning Oil Feed

Insuring a steady clean flow of oil.

A forged unit preventing all possibility of leakage.

The Superheater

An exclusive feature.

A special pressed steel alloy unit, increasing the speed of starting and giving more heat than ever before.

These factors further increase the lead Silent Glow always held in starting and heat capacity.

Large Vaporizing Capacity

Seven times that of other burners.

THE MERCHANDISING POLICY

Thorough training of dealers.

Thorough training of installation men.

Definite protection to dealers on territory.

An established uniform price policy.

Sales and installation only by authorized dealers assuring customer satisfaction.

A generous margin of profit for the dealer.

Trained field men to give sales and installation assistance.

Constant development work assuring a product that always will stay ahead of the field.

5-year Factory guarantee backed by a $10,000 Cash Deposit.

Eight years' experience and 80,000 installations.

To assure the dealer and customer of the permanency and responsibility of the organization.

The rapid expansion of our business offers an unequalled opportunity for a few additional distributors and dealers. Write today for full information.

THE SILENT GLOW OIL BURNER CORP.

HARTFORD, CONN.

SILENT GLOW
TRADE MARK REGISTERED U.S. PAT. OFF.
OIL BURNER
Authorized Representative

The Silent Glow Oil Burner Corp.
Hartford, Conn.

Please send me details on the SILENT GLOW franchise.

I am now engaged in the ..... business

Name .....

Address .....

City ..... State .....

D. E. 1-31

ONLY JENKINS....

have both these advantages

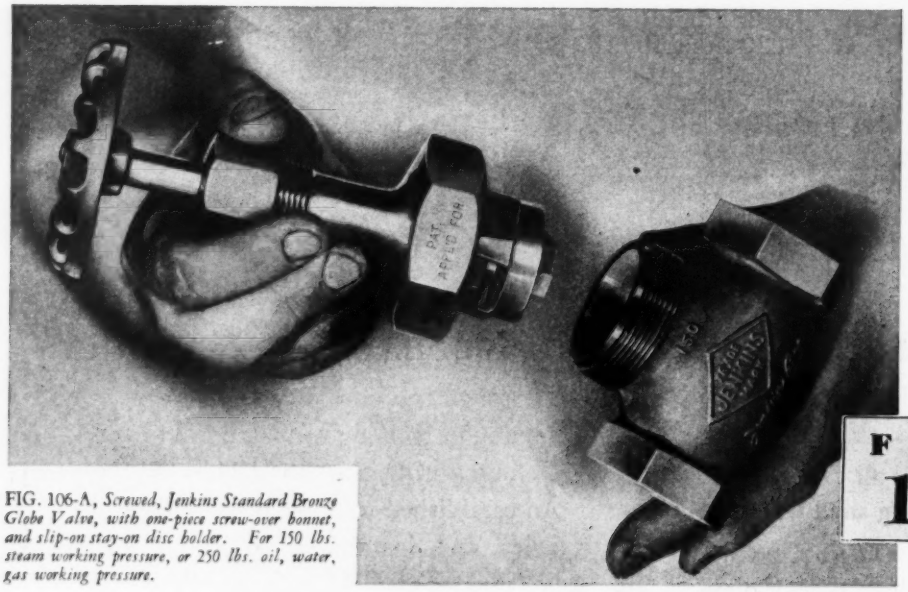
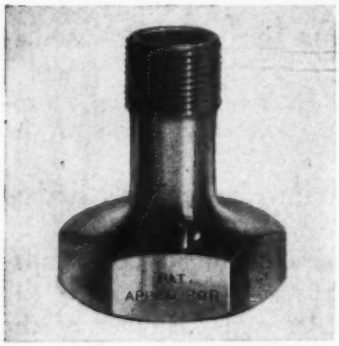
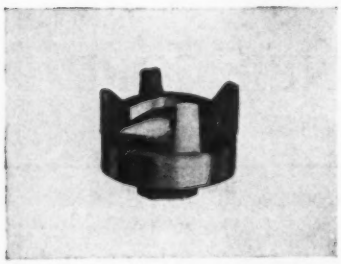


FIG. 106-A, *Screwed, Jenkins Standard Bronze Globe Valve, with one-piece screw-over bonnet, and slip-on stay-on disc holder. For 150 lbs. steam working pressure, or 250 lbs. oil, water, gas working pressure.*

FIGURE 106-A



Note the finely finished screw-over bonnet that is made from a single piece of selected Jenkins Valve Bronze.



Then remove the bonnet and look at the slip-on stay-on disc holder. It slips on, but when the bonnet is removed, this disc holder won't slip off until you want it to.

A SCREW-OVER bonnet that is made in one piece and a slip-on stay-on disc holder combine advantages obtainable only in Jenkins Valves . . . Standard Bronze Globe, Angle and Cross Valves.

Ask your supply man to let you examine Jenkins Fig. 106-A. Note the large hex faces on the one-piece bonnet which enable you to obtain a good grip with a wrench. You can remove and replace the bonnet over and over again. The sturdy one-piece construction provides strength against springing or distortion. At supply houses everywhere. Write for Bulletin 141.

JENKINS BROS.

80 White Street, New York, N. Y. — 524 Atlantic Avenue, Boston, Mass. — 133 No. Seventh Street, Philadelphia, Pa.
646 Wash. Blvd., Chicago, Ill. — 1121 No. San Jacinto, Houston, Tex.
JENKINS BROS., Limited, Montreal, Canada — London, England
Factories: Bridgeport, Conn. — Elizabeth, N. J. — Montreal, Canada

Jenkins
VALVES
Since 1864

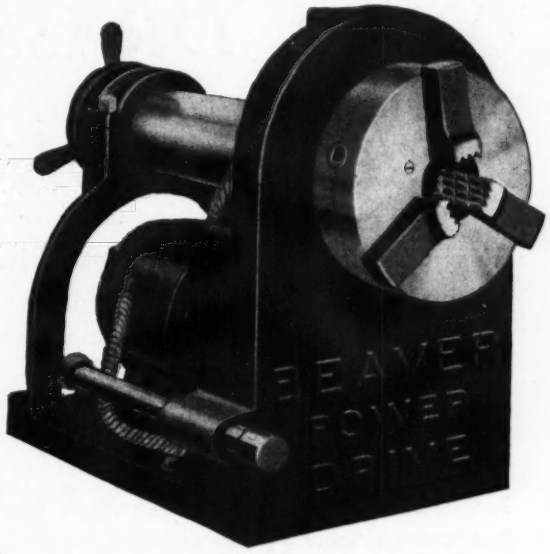
JENKINS VALVES ARE ALWAYS MARKED WITH THE "DIAMOND"

The BEAVER POWER Drive

can now be had with

UNIVERSAL (Reversible) Motor

Makes POWER Tools Out of Your HAND Tools



Cuts and Threads from ¼ inch to 12 inch inclusive

Powerful — Profitable — Practical — Portable
Sturdy — Simple — Safe

No. 46 Beaver Power Drive is the same in design, construction, weight and price as the No. 44 and 45 Beaver Power Drives which have so thoroughly proved their value and dependability in pipe shops throughout the country during the past six years. The ½ H. P. Universal (Reversible) Motor operates on any 110 volt line, AC or DC of any cycle.

STAND FOR POWER DRIVE

The six years' record of the Beaver Power Drive of not a single repair due to wear or inability of the machine to stand punishment is its own best recommendation—but any of the several thousand Beaver Power Drive owners will unhesitatingly and without reservation endorse the machine as capable of giving the kind of service and satisfaction you demand of such equipment.

The Borden Co.
510 Dana Avenue
Warren, Ohio, U. S. A.

THE BORDEN COMPANY, 510 Dana Ave., Warren, O., U. S. A.

Send me catalog and full information on the Beaver Power Drive and on the 9 New and Improved Beaver Die Stocks and Pipe Cutters.

Name..... Position.....

Firm.....

Street..... City..... State.....

In Buffalo
Anaconda Brass Pipe
is widely accepted

Anaconda Brass Pipe is going into a bigger percentage of Buffalo's buildings than ever before. Recent notable installations include the Park Club; New York Central Station; State Office Building; Campanile Apartments; The George Rand, J. Hazard Campbell and F. H. Goodyear residences.

The increased use of Anaconda Brass Pipe in Buffalo is typical of the whole country... In the last ten years the demand for Anaconda Pipe has grown steadily until today almost 20 times as much is used as in 1920. The public's recognition of the durability and consequent economy of brass pipe, and the unvarying high quality of Anaconda products have accounted for this increase.

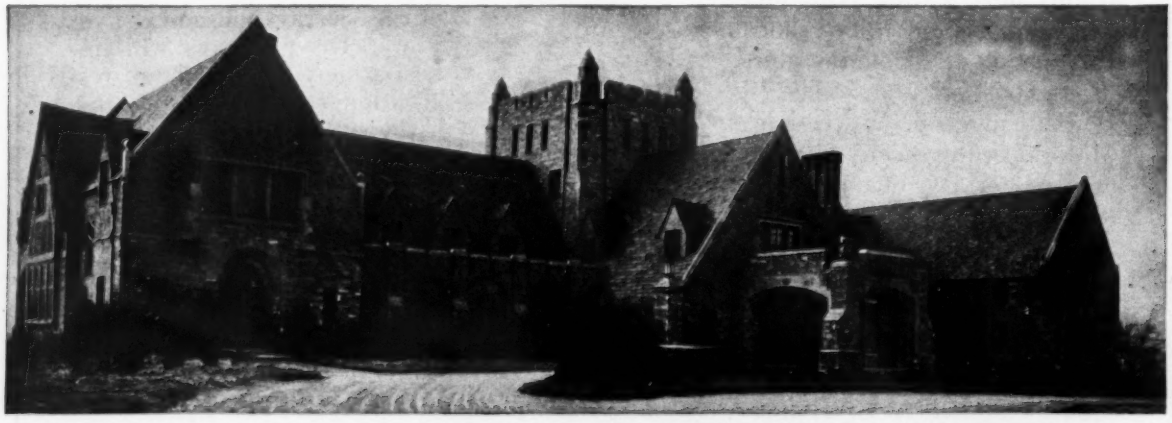
Leading contractors prefer to use Anaconda Brass Pipe because customers and architects seldom question the wisdom of installing it. Anaconda advertising, which has presented the advantages of durable plumbing pipe to the public, offers a valuable tie-up with the sales activities of progressive contractors.

Ask your supply house for Anaconda Brass Pipe; tell customers and prospects that you recommend it. The Anaconda trade-mark is your assurance of unvarying quality. The American Brass Company, General Offices: Waterbury, Connecticut. Offices and Agencies in Principal Cities.

ANACONDA
from mine to consumer

ANACONDA BRASS PIPE

MADE BY THE AMERICAN BRASS COMPANY



The new Park Club, Buffalo, equipped throughout with Anaconda Brass Pipe, installed by George H. Drake (President, N. A. M. P.). Mr. Drake is an enthusiastic user of Anaconda products.

don't sell cast iron

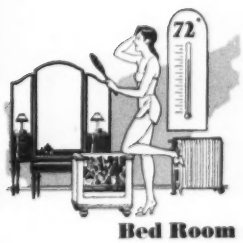
sell Made-to-Measure Warmth

NATIONAL-IZE *means* MODERN-IZE

Say "National-ize" or say "Modernize"—in heating they mean the same. "National-ize" means the revolutionary *Made-to-Measure* idea, that takes the stress off price, puts it on performance. Emphasis is no longer on standard equipment, standard results, standard installations. Now it is on individualized systems, installed by specialists whose expertness and knowledge are vital factors.

"National-ize" means better heating—for it gives warmth to fit each room. "Nationalize" means satisfied customers—for each boiler is backed by a bond, that not only guarantees workmanship, material and design, BUT MOST IMPORTANT OF ALL SPECIFIES AND GUARANTEES BOILER PERFORMANCE. "National-ize" means more sales—better profits—through the Protective Payment Plan that gives partial payment to customers, complete payment, on the completion of the job, to you.

"National-ize" means better business, full cooperation. One of our salesmen will gladly explain.



Bed Room

Grandma's Room

Bath Room

Living Room

NATIONAL RADIATOR CORPORATION
JOHNSTOWN, PENNSYLVANIA

NATIONAL
Made-to-Measure HEATING SYSTEMS

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SMITH & WESSON

modern

DESIGN—

Study the design of Smith & Wesson Flush Valves.

In it you will see every modern improvement of engineering principles.

The hydraulic governor, which controls the water flow, is far in advance of ordinary practices.

Modern . . . Advanced . . . Outstanding . . . those are the reasons Smith and Wesson Flush Valves are going into more and more jobs every year.

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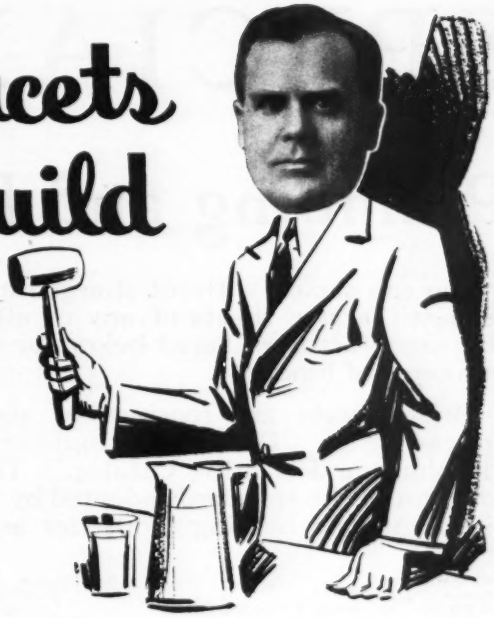
SMITH & WESSON
FLUSH VALVE DIVISION
SPRINGFIELD MASS.

"Repairing faucets is no way to build a plumbing business"



"There's nothing I dislike more than charging people for repairing faucets. With the present cost of labor, people think I'm robbing them. I much prefer to urge them to buy good faucets—Chicago Faucets—and tell people to fix 'em themselves. I have found from experience that such a policy brings customers back again and again to buy other goods as a result of building confidence and goodwill."

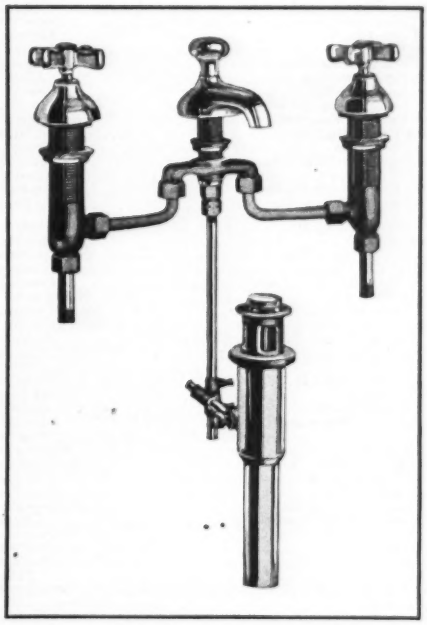
J. C. Naughton
Chicago Master Plumber

The Chicago Faucet Company,
2700-22 N. Crawford Avenue,
Chicago.

Tell me more about Chicago Faucets and send a copy of your new 76-page catalog.

Name.....

Address.....



A Popular Fixture

The trade likes the No. 462 Lavatory Fixture because it's a good seller. Why not order one for your window or showroom and prove to yourself that this beautiful combination is a profitable item? Round pattern, all-metal, chromium plated, complete with Brown Pop-up Waste.

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to

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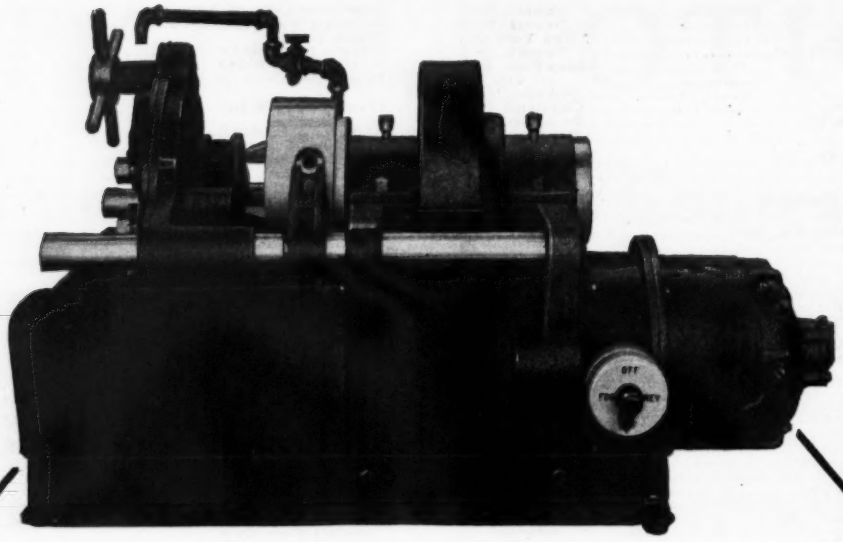
Wood Mfg. Co., John ..... Conshohocken, Pa.
Worcester Brush & Scraper Co ..... Worcester, Mass.

"X" Laboratories ..... New York City

Yeomans Brothers Co ..... Chicago, Ill.
Yost Mfg. Co ..... Meadville, Pa.

Zurn Mfg. Co., J. A ..... Erie, Pa.



Here Is Power and Speed Portability and High Production

Never before has there been a ½ in. to 2 in. Power Pipe Machine with such high qualifications as the "TOLEDO" No. 999. This handy little power threader really proves itself on one job. The "TOLEDO" No. 999 threads and cuts all sizes of pipe in record time. 2-in. pipe is threaded in 30 seconds, cut off in 14 seconds, smaller sizes even faster. A one-man machine that does the work well. Surely this is the ½-in. to 2-in. power machine you have been waiting for. The "TOLEDO" No. 999 sells for $275.00 net f. o. b. Toledo or your distributor's stock. (Slightly higher west of Rockies).

"TOLEDO"

THE TOLEDO PIPE THREADING MACHINE CO.
TOLEDO, OHIO **New York Office, 72 Lafayette Street**

DOMESTIC
ENGINEERING
JANUARY 10, 1931

Our Industry

We Americans have the habit, so it is told, of being good joiners. Get three or four men together and you are quite likely to find that they have started a new society and one of them is now president, one is secretary and the other treasurer.

♦ ♦

And the fact that many of these societies accomplish nothing reflects the haste of their organization and the lack of sufficient interest by the officers and members to work for definite results.

♦ ♦

In the first six months of this new year, business men making up the great plumbing and heating industry will have the chance to attend one or more of nearly 50 annual conventions. Whether or not they do attend will depend largely upon the good they may or may not have got from last year's meeting or whether those held in the next few months bring out constructive ideas.

♦ ♦

The growth of automobile touring has removed much of the old attractiveness of a convention, that is, the opportunity it gave to take a trip and see something new. This puts more squarely than ever upon association officers the serious obligation to make their meetings so vital to the welfare of the members that business men can afford the time and money required in being away from their own company affairs for several days.

♦ ♦

Frankness compels the admission that not all associations have been proving by their records the right to demand this expense and sacrifice on the part of the average contractor, salesman, wholesaler or manufacturer.

♦ ♦

The reason is not hard to find.

♦ ♦

Business men are on the lookout for practical helps. Unless a convention program recognizes this by taking up problems which are uppermost in the minds of its members, the fault rests on the makers of the program, not on the members.

♦ ♦

Officers of an association should be well enough grounded in business affairs to develop a program of progress. Under 1931 business conditions, this responsibility is greater than ever.

♦ ♦

Probably this whole business of holding a convention is patterned from the model of years ago.

♦ ♦

At that time, business conditions were simpler and today's responsibilities of working harder and going out after business did not exist. Then business came to the plumbing and heating industry.

♦ ♦

Today the industry must march alongside of other businesses and find its customers.

♦ ♦

It makes little difference whether this year's attendance is larger than last year's. It is much more important that those members who come to a convention this year go home with some definite ideas which they can use.

◆

Prophets of prosperity are now unpopular. Everyone is too busy working to stop and listen.

"Here's our statement for '29. We'd like to have your accounting expert go over it and maybe he can give us some tips. Anyway, it shows a profit, and if it was written up in your paper it might stiffen the backbone of some contractors so they would get a profit on every job they do."

At the start of the New Year, take this opportunity to check your own figures against those of a successful plumbing and heating firm.

A WESTERN plumbing and heating engineering firm has submitted to us for analysis and comment its financial statements for the year 1929. After examining the figures one cannot but feel that whatever may be wrong with business, here, at least, is one plumbing establishment that has provided a concrete example of how to make money in an "off" year.

This partnership, for such it is, is located in a town of 28,500 inhabitants, in which there are twelve plumbing shops—five down town, and seven in the outskirts. In the downtown shops the proprietors are all association members. This firm solicits no business outside of the city. It solicits no competitive business of any kind; and its sales are confined to specialties, remodeling, and expert service. An eloquent commentary on the mental attitude of the men conducting this business is revealed in a remark by one of the principals, "Golf game persistently rotten." The story of their stick-to-it-iveness in business is told in a truly remarkable operating statement.

In order that we may locate the items which call for special study, we reproduce at this time a comparative trading statement which shows just what happened, and where, between 1928 and 1929.

These figures do not take into account a contract amounting to $104,000 on a "cost-plus" basis, which was not completed at the time, and on which only an allowance of $400 a month for seven months is shown on the books. This contract, therefore, is not taken into account in the above statement, either in sales or cost, so that a comparison between 1928 and 1929 is quite fair and safe.

Costs Reduced

The first thing that attracts our attention is the substantial reduction effected in the Cost of Sales; that is, in Material and Labor costs. Notwithstanding the fact that sales increased $7,400 in 1929, the operating cost (exclusive of overhead) decreased over $10,000. Just how this economy in costs was effected we are not able to say, for the statement does not give this information. However, we have a clear example here of increased profits secured through a reduction of operating costs and not through cutting down overhead expense. The overhead expense for each of the years shown is practically the same.

It is interesting to discover that this efficient management brought results in each of the three depart-

	1929	1928	Difference	Per cent to sales	
Gross sales	$180,923.17	$173,509.81	$ 7,413.36	100.00%	100.00%
Cost of sales	129,046.43	139.422.01 C	10,375.58	71.33	80.35
Gross Trading Profit	51,876.74	34,087.80	17,788.94	28.67	19.65
Gen. & Adm. Exps	23,854.96	23,867.41 C	12.45	13.18	13.76
Net Operating Inc	28,021.78	10,220.39	17,801.39	15.49	5.89
Add: Other Income	1,388.98	304.41	1,084.57		
	29,410.76	10,524.80	18,885.96		
Deduct Other Exps.	2,555.51	4,972.16 C	2,416.65		
Net Income for year	26,855.25	5,552.64	21,302.61	14.84	3.20

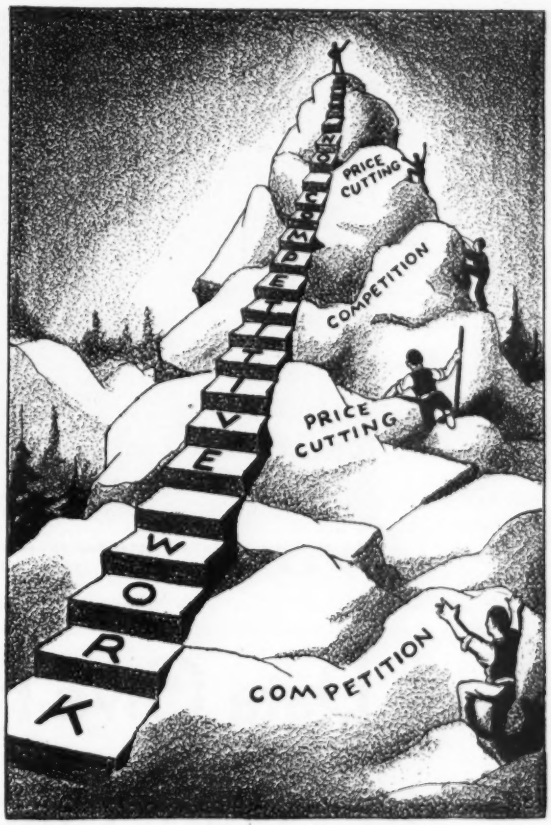
ments of this business; the store, the shop, and in contracts. The following statement will show a comparison by years of the percentage of gross profit to sales, and to cost of sales, for each department. And in each case 1929 shows a very decided increase in gross profit over 1928.

	Percentage of Gross Profit			
	To Sales		To Cost of Sales	
	1929	1928	1929	1928
Store	43.05%	36.75%	75.60%	58.12%
Shop	54.04	33.90	117.55	51.30
Contracts	18.11	12.90	22.12	14.80

While comparison between one year and another of classified sales and costs is interesting and profitable, we can go a step further by comparing the costs with some standards based on *average costs* for different sales volumes. In previous issues of DOMESTIC ENGINEERING we have used such standards. The average cost figures prepared by the Bureau of Business Research of the University of Oregon, and based on the 1928 financial reports of 26 master plumbers, is one of the most reliable. I have prepared a comparative statement for 1929 which shows, first, our correspondent's percentages, and then the standard percentages furnished by the Bureau of Research reports.

		Percentage of Cost to Sales	
		Our percentages	Bureau percentages
Gross Sales	180,923.17	100%	100%
Cost of Sales:			
Labor 67,500.11		37.33	29
Purchases 61,546,32		34	49.1
Total	129.046.43	71.33	78.1
Gross Trading Profit	51,876.74	28.67	21.9
Gen. & Admins. Exp.	23,854.96	13.18	16.8
Net Operating Income	28,021.78	15.49	5.1

The interesting thing to note here is that the Labor percentage in the case of our correspondent is much higher than the average figures furnished by the Bureau. But, on the other hand, materials and other purchases are considerably less, and the gross trading profit (or margin) is nearly 7 per cent above the average figure.



Our correspondent may likewise compliment himself on his low overhead costs. Here he makes an additional 3 per cent over the standard average; and finally his net gain is over 10 per cent of the average net profit as shown by twenty-six other plumbers whose statements were analyzed by the Bureau.

It may be interesting to compare the general and administrative costs, in percentages, with those of the Bureau survey, given on page 154.

Further Considerations

There are three or four items here which are worth considering: The managerial salaries are very low

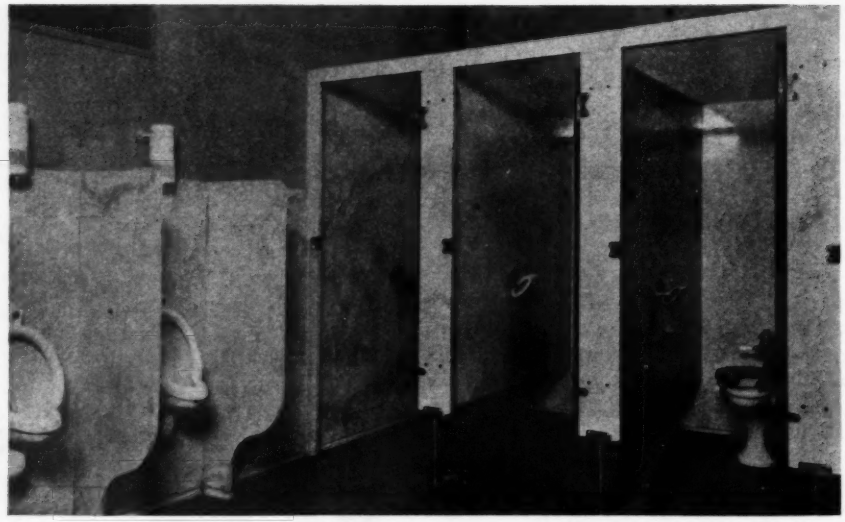
(Continued on Page 154)

A. J. Peel Tells why

This Statement Showed a Profit

Because:

They did no competitive work
They cut costs 10%
They spent twice the average for advertising
They increased sales



The problem of fixture selection in general business buildings cannot be set alone on a basis of a ratio between the types and number of fixtures and the population of the building

New Data Give Practical Guide to Figure Number of Fixtures in—

Office Buildings Schools and Clubs

By LOUIS T. M. RALSTON

This article reports results of a special investigation and gives the plumbing contractor information on how to determine the correct number and proper arrangement of the plumbing fixtures

IN preparing this article, the writer has not considered any items other than the number and arrangement of plumbing fixtures and how to best arrive at the proper answer to this important question alone. The preparation and arrangement of data on which to base piping plans for drainage, venting and water supply, the type of construction of fixtures and fixture fittings and other details of the actual plumbing installation are not considered. Furthermore, in preparing this article, a modern type of business office building was alone considered. This was purposely done on account of the many problems attending this type of building and furthermore to give a definite basis for fixture requirements as a result of particular study on that subject. Heretofore the method of selecting the number and arrangement of fixtures in large business buildings has been governed by haphazard methods and in part by past experience of those engaged in the design of the building. Needless to say, in some cases the results have not been what was desired and in other cases results have been extravagant. Many interested parties have made independent and thorough investigation of this subject, with the result that it should now be possible to plan the number and arrangement of plumbing fixtures in business buildings with considerable certainty that the completed installation will meet the many varying demands.

In no other class of building is the selection of the proper number and arrangement of plumbing fixtures so difficult to design as in a business building. In residential buildings, such as homes, apartment houses and hotels, the fixture requirements are simply governed by the number of bathrooms, plus certain additional items to take care of employes and publicly used spaces, but in general it is safe to say that the number of bathrooms determine the percentage of the number and arrangement

of fixtures in this classification. In hospitals and institutions requirements vary so with each building that no basis can be stated that would be of value except in a few isolated cases. For this latter type of building it is necessary to make a separate study of the requirements with the staff who are to operate the building. Factories as a rule are governed by some form of public regulation as to minimum requirements for men and women, and any increase above the minimum depends upon special conditions within the particular industry. In the case of public schools, certain municipalities state requirements for the number of fixtures to be provided for boys' and girls' toilet rooms and locker rooms on a pupil basis. Where schools do not come under such governing classification, Table 1 below gives conservative quantities for school house uses and in addition there has been included in Table 1 a similar conservative basis of estimate for fixture requirements in first-class country clubs.

TABLE 1

Public Schools

Each floor to contain at least one boys' and one girls' general toilet room. Each main corridor on each floor to contain at least one drinking fountain.

Boys' Toilets:

Water Closets	1 for 20 boys
Urinals	1 for 25 boys
Lavatories	1 for 40 boys
Slop Sink	1 in separate closet adjacent to toilet

Girls' Toilets:

Water Closets	1 for 15 girls
Lavatories	1 for 35 girls
Slop Sink	1 in separate closet adjacent to toilet

Boys' Locker Room Toilet:

Water Closets	1 for 40 boys
Urinals	1 for 35 boys
Lavatories	1 for 50 boys
Drinking Fountain	1 for 100 boys
Showers	1 for 30 boys
Slop Sink	1

Girls' Locker Room Toilet:

Water Closets	1 for 30 girls
Lavatories	1 for 45 girls
Drinking Fountain	1 for 100 girls
Showers	1 for 45 girls
Slop Sink	1

Country Clubs

Men's Locker Room Toilet:

Urinals	1 for 40 male members lockers
Water Closets	1 for 50 male members lockers
Lavatories	1 for 40 male members lockers
Showers	3 for 100 male members lockers
Drinking Fountain	1 for 100 male members lockers

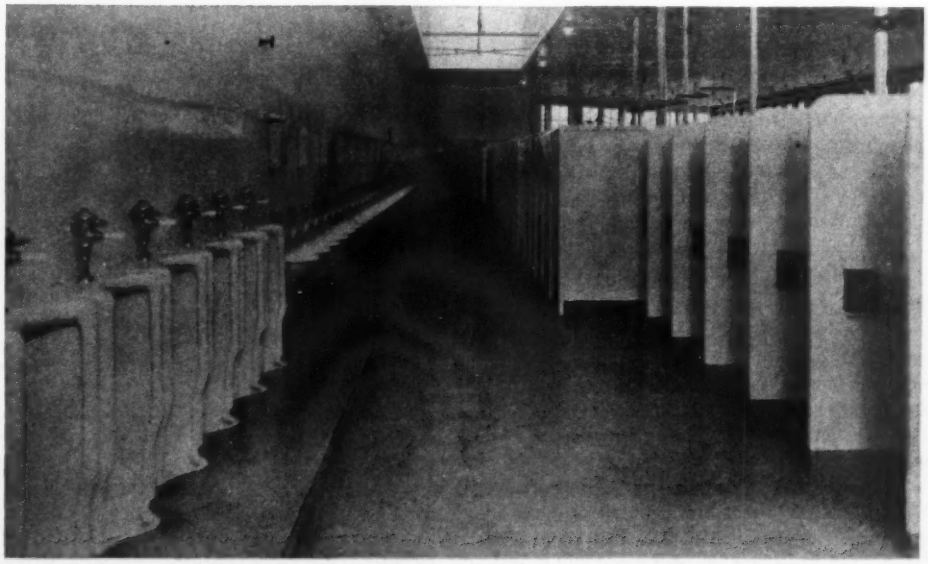
Women's Locker Room Toilet:

Water Closets	1 for 40 female members lockers
Lavatories	1 for 40 female members lockers
Showers	1 for 50 female members lockers
Bath Tubs	1 for 75 female members lockers
Drinking Fountains	1 for 100 female members lockers

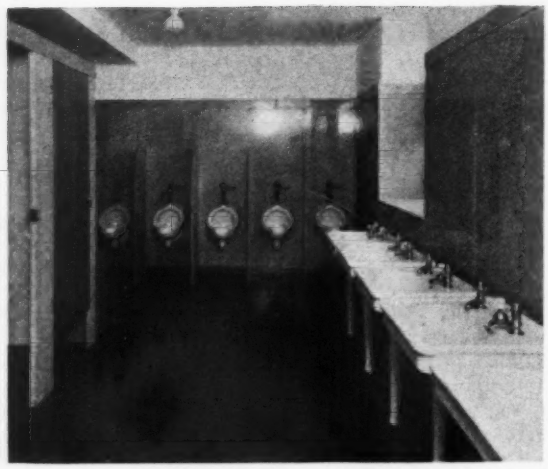
The problem of fixture selection in general business buildings cannot be set alone on a basis of a ratio between the types and number of fixtures and population of the building, as there are certain other indefinite but important needs, which are, briefly, the number of stores in the building, what provision must be made to accommodate individuals using the building for any purpose, exclusive of the building occupants, the class of tenancy, the congestion of tenants, the possible change in tenancy and the possible future inclusion in the building of clubs, restaurants, laboratories, public sales rooms, auditoriums and finally the number of employees that it will take for the building operating staff.

Importance of Plumbing Fixtures

The possibility of the successful construction and profitable management of high business buildings has been due to the successful development of first-class elevator installations more than any other single item. It is also a safe general statement that no other item affects the satisfaction of the tenant in a business build-



Factories, as a rule, are governed by some form of public regulation as to minimum requirements for men and women and any increase above the minimum depends upon special conditions within the particular industry



A distance of 150 ft. from office door to toilet door should not be exceeded

ing any more than the adequacy and arrangement of plumbing fixtures. In order to ensure the satisfaction of tenants and the ability to provide for any class of tenants or density of tenants, or change in type of tenants, all of which directly reflect the profits to be anticipated from the investment, the question of number and arrangement of plumbing fixtures should be considered from the inception of the plans. Until the question of the number of fixtures is determined, the sanitary engineer designing the plumbing installation cannot proceed very far with size, arrangement and selection of material for piping work, pumps, tanks and other main features of the plumbing installation.

The first consideration is to provide for the growth in the use of business buildings, especially where they are erected on costly property in congested districts. The next problem to be considered is the shape and area of the floors to be rented so as to determine the number of men's and women's toilet rooms on each floor. The planning of toilet rooms for men on one floor and women on the next floor alternately is to be distinctly avoided except in special cases where floor areas are particularly small, or where the building to be erected is to cater to a particular class of tenant where such an arrangement would not be objectionable. It is also undesirable to plan toilet rooms that do not open off the main circulating corridors of a building and in no case should toilet rooms open off fire tower stairs or general stairs.

Location of Toilet Rooms

The toilet rooms should be located so as to open on main corridors and, if possible, from two parallel corridors, and every effort should be made to locate these rooms immediately above each other with offsets only where the floor areas are materially reduced. This will materially simplify piping and ventilation design, construction, and maintenance. The toilet rooms should be located in the central core of the building in the darker spaces furthest from the more desirable renting space nearest natural light. A distance of 150 feet from office door to toilet door should not be exceeded. All toilet rooms should be entered through a vestibule space of depth sufficient to screen interior view from corridor. The water closets should be grouped in one room and the urinals and lavatories in another communicating room.

Private Office Fixtures

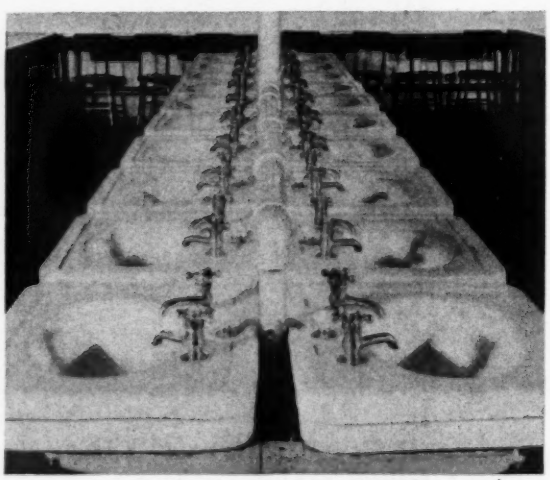
Next in consideration after location and size and arrangement of the general toilet rooms is the provision for private tenant office fixtures. This can never be determined definitely, so the best accepted practice is to provide piping adjacent to interior columns passing through rentable areas in such a manner that in any bay a lavatory can be provided. Near the corners of the building this piping should be large enough to provide for possible future water closets and showers in certain tenant spaces. In a building of any considerable height or size for the site at least two lines of increased capacity should be provided for possible tenancy near top of building that would require kitchen, extensive laboratories, locker rooms, or other excessive fixture concentration.

A definite area should be set aside for women's rest room. It is also recommended that at least one water closet compartment in each women's general toilet (preferably the one at end of row) be made twice the normal size. A location should also be determined for employes' general retiring room, locker rooms, etc., so adequate sanitary provisions can be provided. This location should be such that traffic to it will not be mixed with tenant traffic.

The ground floor of business buildings is always devoted to shops and stores and often this includes part or all of 2nd and 3rd floors and basement. Provisions for store tenant toilets can be made either by individual toilet for each store subdivision or by general male and female store tenant toilets at central locations similar to office floor toilets. The latter method is preferable from point of economy, supervision, cleaning and more store space, but is only to be used where store tenants can gain access to such a room without going outdoors or through another store.

Fixture accessories and fittings should be carefully chosen, as should the fixtures themselves, so as to provide the best sanitary features and in addition be as

(Continued on Page 157)



Fixture accessories and fittings should be carefully chosen, as should the fixtures themselves

What Causes Foaming in Boilers?

Earl Belmont tells how dissolved solids combine to produce trouble, and how to prevent it

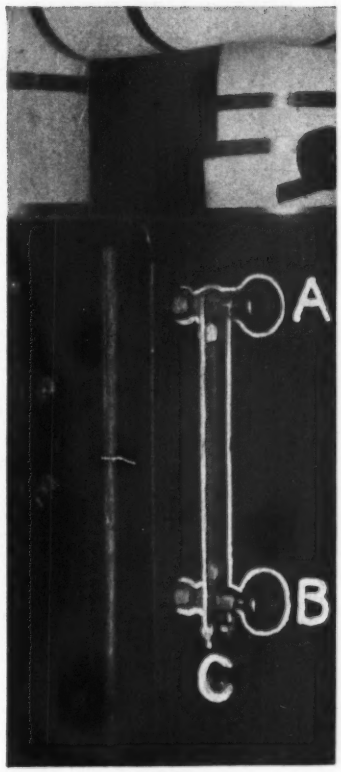


Fig. 1—One of the easiest, quickest and surest ways of testing a boiler for foaming is by means of the water glass

WHEN the steam that leaves a boiler has water in it in the form of mist, or in large slugs, the boiler is said to be priming, or foaming, or throwing water. All of these expressions have come to mean practically the same thing, though originally there was a difference. As a matter of convenience we will speak of this action as foaming.

Theoretically, when steam is formed by evaporation of water, it leaves as a dry gas. In practice, most steam contains some water and is therefore called wet steam. The amount of water in steam varies from none, in the case of dry steam, to enormous quantities, when the boiler is foaming badly.

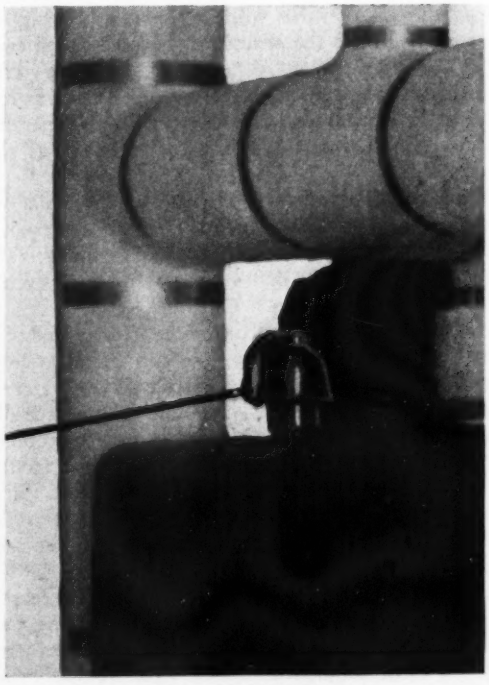


Fig. 2—When testing a boiler for foaming by means of the safety valve, remain a safe distance away from the valve because if the boiler is very dirty, a solid stream of water may be thrown out with scalding possibilities

To date, no one knows definitely just what happens when a boiler foams. There are any number of theories on this subject and most of them seem to explain what happens, but they are all merely theories and have yet to be proved.

However, there are certain things that we do know about foaming that are very helpful to us. We know that pure water does not foam. This can be easily tested by watching pure water boil in a tea-kettle. When we watch closely we see that the steam is formed on the bottom and sides of the kettle in small bubbles that quickly rise and burst without greatly disturbing the surface of the water, shown in Fig. 4.

Now if we were to boil a sample of water from a foaming boiler, we would find that the boiling is much more violent, and that the bubbles burst on the surface and throw considerable mist into the steam when leaving the surface of the water. In addition, a thick foam would probably form on the surface of the water. The difference is that the boiler water has something in it which causes this action.

As far as we know at present, foaming is caused by dissolved solids (salt, alkali, etc.), sediment, or oil in the water. A combination of two of these is usually necessary before foaming occurs.

Source of Trouble

It is only natural to wonder how dissolved solids could get into boiler water. There are many ways.

Many natural waters, particularly well waters, contain

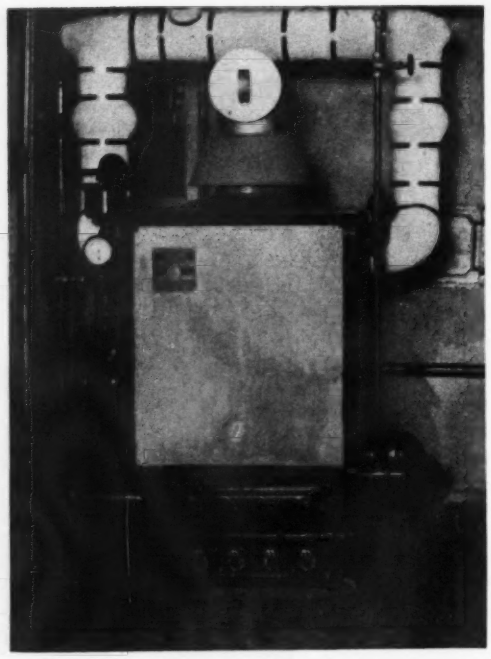


Fig. 3—"Due to foaming, the water would drop 6 in. a second. If the low water cut-off had not worked perfectly, the boiler surely would have been cracked."

dissolved solids, such as soda ash, ordinary salt, etc. You will observe that we are referring now to the solids that stay in water and do not form scale. Such solids are called non-scaling dissolved solids to distinguish them from scaling dissolved solids that do form scale, such as lime and sulphides.

Non-scaling dissolved solids are present in all water that passes through a water softener. For this reason the use of softened water is one of the most common causes of foaming.

Sediment, which is usually just plain mud, is present in water from shallow wells, lakes and rivers. The only remedy is an effective filter.

Oil gets into a new system in many ways. Most pipe is oily. The inside of any cast iron radiator is usually coated with core oil, and considerable cutting oil that is used for threading pipe gets into the system. It is almost impossible to remove all of the oil in the exhaust steam from a reciprocating steam pump or engine or other device using cylinder oil.

Preventing Foaming

The only way to insure freedom from foaming is to keep the water in the boiler as pure as possible.

How to Tell if a Low Pressure Boiler Is Foaming

Many people judge whether or not a boiler is foaming by watching the water on the water glass. If it is moving up and down they immediately decide that the boiler is foaming. They may or may not be right.

A boiler may be foaming when the water line seems steady. Even with an unsteady water line a boiler may or may not be foaming. We do not say that an unsteady water line may not be an indication that a boiler is foaming. We merely mean to state that it is not sufficiently reliable to be depended on entirely. We certainly would not shut down a big boiler for cleaning merely because the water line seemed a little unsteady. We would insist on further proof that the boiler was foaming before going to all of this trouble.

One of the easiest, quickest and surest ways of testing a boiler for foaming is by means of the water glass. The ordinary water glass is connected to the boiler by means of two angle valves A and B, as shown in Fig. 1. The lower valve B is always fitted with an air stop (pet cock).

The first step is to bring the water line to approximately the proper level and to have normal pressure on the boiler. The boiler pressure should be at least 1 lb. even though the boiler may be normally operated under a vacuum.

Then, close valve B, open valve A and air stop C. This will allow a stream of steam to escape from the top of the boiler through valve A, the gauge glass and air stop C into the atmosphere. This is just like connecting another steam line to the boiler except that we can watch the steam going through the water glass. If the boiler is throwing water, this small stream will carry water with it, too. This water will form in small streams on the glass where it can be easily seen.

Test to Be Used

If the steam is carrying water with it the jet of steam leaving the air stop will seem damp to the hand. If no water is in the steam, it will seem dry.

A second test that is equally good is to open the safety valve when there is a pound or more of steam on the boiler. If the boiler is throwing water, the steam leaving the safety valve will carry water with it. The water carried with the steam can be easily seen coming out of the safety valve. When the boiler is very dirty a solid stream of water may be thrown out. For this reason it is wise to remain at a safe distance and to operate the safety valve by means of a wire or slice bar, as shown in Fig. 2.

A third test is to draw off a little of the boiler water from the gauge glass and to boil it in an open pan. If the water is clean, it will boil without foaming. If the water is dirty, it will boil violently and may even boil over the sides of the pan.

In this latter case, when the water is dirty and, consequently, boils quite violently, one can usually tell what is making the boiler dirty by boiling the water very slowly until only a little is left. Then the source of the trouble can be found. If oil is causing the trouble, an oily scum will be seen on the water. If the trouble is caused by sediment, the water will be cloudy. In case the trouble is caused by soda or boiler compound, the water will feel soapy or light crystals like salt will be found on the sides of the pan.

If boilers should suddenly stop foaming, at least half of our professional trouble-shooters would be out of work. Foaming probably is the cause of more trouble than any other condition.

Trouble Job Encountered

I shall never forget a gas-fired vapor system with which I worked recently. It was a straight upfeed

vapor system with a gas boiler. When the job was completed the heating contractor, who was a very conscientious man, carefully wasted the returned water to the sewer for a week or more and then changed the water in the boiler. After doing all this he naturally did not expect foaming.

As a result of his pains, the system worked nicely for a week or ten days; then everything seemed to go wrong. First the radiators in one part would be very slow or would not heat at all. Then the trouble would shift to some other part. During this time the gas was being turned on and off every few minutes. This was one of his first gas installations.

It did not take long, after we started hunting the trouble, for us to find that the boiler was foaming badly. As shown in Fig. 3, the boiler was fitted with a low water line cut off that would shut off the gas supply

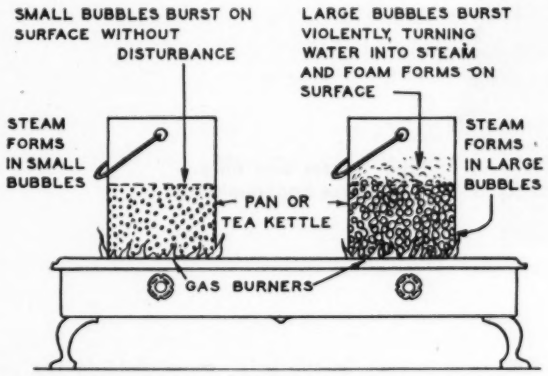

SMALL BUBBLES BURST ON SURFACE WITHOUT DISTURBANCE
LARGE BUBBLES BURST VIOLENTLY, TURNING WATER INTO STEAM AND FOAM FORMS ON SURFACE
STEAM FORMS IN SMALL BUBBLES
STEAM FORMS IN LARGE BUBBLES
PAN OR TEA KETTLE
GAS BURNERS

Fig. 4—Pure water does not foam. Boiler water may be tested by boiling samples over a gas flame in an open pan

when the water dropped to a dangerous point and would turn it on when the water line was normal again.

I have seen a lot of foaming boilers but I have never seen one foam as badly as this one did. I vow that the water would drop 6 in. a second.

When the waterline dropped, the low waterline cut-off closed the gas valve. The burners would remain off until enough water returned to the boiler to raise the float in the cut-off. Consequently the burners were being turned on and off every three or four minutes and the radiators were not receiving steam.

I do not intend this as a criticism of the operation of the low waterline cut-off. On the contrary, I want to praise it, for if this cut-off had not worked perfectly, the boiler would surely have been cracked.

There was nothing to do but clean the boiler, which we did by boiling it out with soda for eight hours. At the end of this time we changed the water in the boiler twice in order to wash out all of the soda, and then put the boiler back into operation.

The system worked for a few days, then the trouble started all over again. I have frequently cleaned boilers two or three times before getting rid of the oil, but this one acted up so badly that I thought it worth while to investigate it more carefully.

We removed the tops of several traps and found the trap interior greasy. We also disconnected several radiators and found them greasy. Finally we disconnected the wet return line and found a small stream of oil in the bottom of it.

We have never been able to explain why there was so much oil in this system. Nevertheless, there it was and we had to get it out. So we put ten pounds of soda in the boiler and filled the entire system with water, heating the boiler with one burner. At the end of four or five hours we drained the system. It was not possible to measure the amount of oil that came out but there must have been at least a quart.

To make a long story short, we had to clean this system no less than twelve times before it would operate properly. So the next time that you have a dirty boiler to clean, do not be discouraged if it still foams, even after several cleanings.

The Heating Problem

The problem of heating a building resolves itself into (1) a determination of the heat requirements for such room or building to care for heating the incoming air from outside temperatures to those required within; (2) the calculation of the heat loss through the walls, ceilings, doors, windows and floors, which heat must be replaced by the heating system if any given temperature is to be maintained, and (3) a determination of what supplementary heating may be anticipated from auxiliary devices, equipment and animal life within the building.

Heat Requirements for Incoming Air

This factor requires some careful estimates. From the weight of a cu. ft. of air at normal room temperatures, it is found that it takes .02 B.t.u. to raise the temperature of one cubic foot of air one degree F. or one B.t.u. will raise 50 cu. ft. of air one degree F. under average conditions.

If the air is recirculated, which can be safely done when properly conditioned, the heating requirements may be kept reasonably low. But an over-ventilated room using cold outside air for the fan supply can be a very expensive luxury.

A Practical Problem

Problem: How much heat would be required to raise the temperature of two changes of 10 F. air to a room temperature of 70 F., the room being 40 ft. by 80 ft. by 10 ft.?

Computation:

Number of cubic feet in room will be

$$40 \times 80 \times 10 = 32{,}000$$

Since the air must be heated from 10 F. to 70 F., the temperature increase will be 60 F.

For two changes it will require then $2 \times 32{,}000$ or 64,000 cu. ft. of air to be raised in temperature 60 F.

It requires 1 B.t.u. to heat 50 cu. ft. of air one degree.

To raise one cubic foot 60 F. will require $\frac{60}{50}$ or 1.20 B.t.u.

Answer:

To raise 64,000 cu. ft. of air 60 F. will require 1.20 $\times$ 64,000 or 76,800 B.t.u.

The Big Market for Water Sytems

It is estimated that 1,060,000 farms are equipped with water

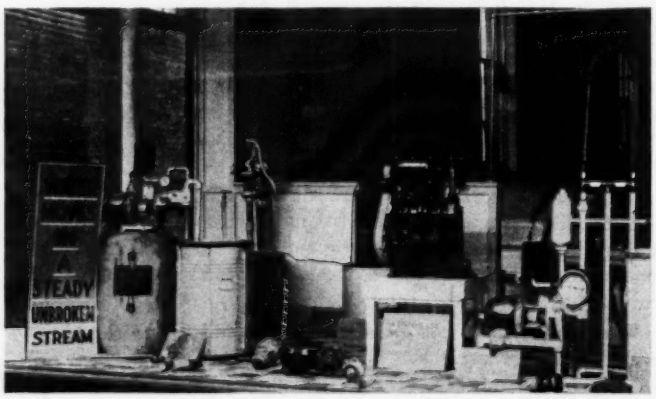
Golf courses also offer a big sales opportunity

THE farms in this country offer a tremendous market for water supply systems, and, broadly speaking, this field offers the biggest field for the sale of water supply systems. There are other markets, naturally, which hold splendid sales opportunities, such as golf courses, suburban homes, etc.

There are about 6,500,000 farms in the United States, of which an estimated total of about 1,060,000 are equipped with water. This latter figure is arrived at by considering that there are some 560,000 farms on electric high lines and an additional 500,000 have their own individual electric lighting plants. It is pointed out by an authority that if electricity is available and is being used by this number of farms they would also have their own water systems.

The new market in the golf course field is not so large, but repair and remodeling work, where increased demand has made already existing systems inadequate, make for a lucrative business. It is estimated that there are about 5,650 private golf courses in this country. The big majority of these will require their own pressure water systems for showers, drinking, fairway watering, fire protection, etc. The yearly increase in such courses is estimated at about 20 per cent. To be added to this, of course, is the large number of public and daily fee golf courses.

Against such a total market the United States Department of Commerce shows shipments of approximately 130,000 water supply systems each year, valued in excess of $7,500,000.



Showing the farmer how by window displays

Brings Business to These Contractors

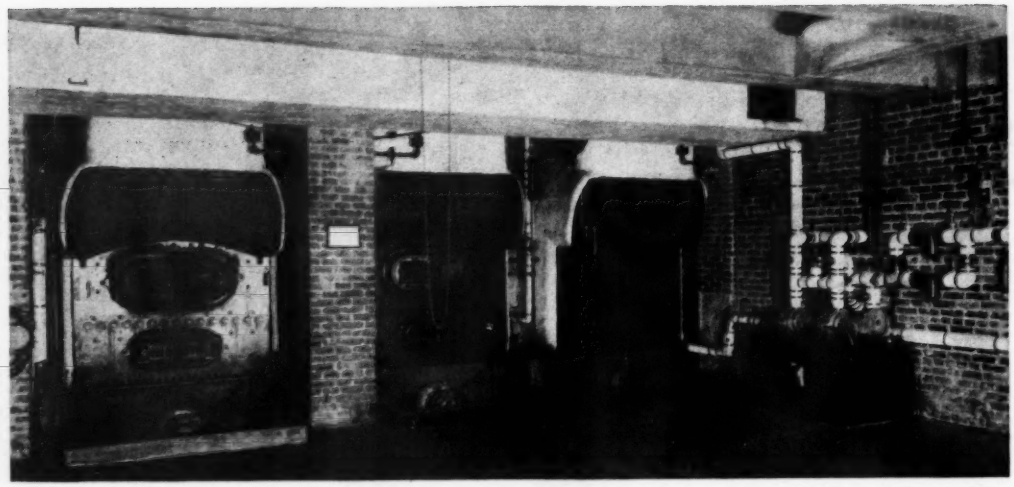
A water system gives this farmer's wife the same advantages as her sisters in the city

The old back-breaking method of getting water into the farm house

"WE do not wait for water system business to come to us," says Mr. Hawvermale of the plumbing and heating contracting firm of Worsfold & Hawvermale, Nyack, N. Y., "but keep three men on the outside continually digging it up. These men are supplied with manufacturers' sales stimulators and are also trained to talk intelligently on water systems. There are two strong selling appeals attached to this merchandise—one is sanitation and the other is convenience."

H. F. Oekel, head of the plumbing and heating firm of Oekel & Sons, Morton, Ill., says: "We could not afford to pass up the farm water supply business. . . . The sale of farm water systems creates a prospect for plumbing and heating. . . . Without a water system, plumbing would be impossible. . . . If we refused to make installations the farmer would find someone else to do the work, and the result was someone else would sell the sink and other fixtures. . . . To date we have already received additional business on last year's efforts."

This display sells water systems in a small town



This is one job, typical of many others, where the writer of this article used the data and information presented herewith in figuring the probable fuel oil consumption

A Rapid Method for Figuring Oil Burner Fuel Consumption

"After all is said and done, the practical oil burner heating contractor wants some chart or table which will allow him to estimate in advance the fuel consumption for a given job." A. H. Senner develops and presents these tables in this article, which although it is complete in itself is the third of his series.

NO DOUBT the majority of the readers of these articles have run across the expression "degree-day" in connection with estimates of heating loads and consumptions of fuel. While the degree-day conception has rightly been credited to the American Gas Association, it should be realized that the engineer who figured heating loads and fuel consumption intelligently, no matter how long ago, must have used the equivalent of the degree-day methods. It is hoped that the reader will not regard this as a disparagement of the creditable degree-day scheme, but rather to the contrary as an emphasis of the fact that it is basically sound and any correct estimates must be reduced to the equivalent of that method.

The degree-day is a unit of heating load, if you will, and is the product of one degree difference in temperature between the inside and out, and a 24-hour period of time. From the U. S. Weather Bureau data, the number of days for which the average temperature is below a certain figure for a given locality can be determined, and this period can be fixed as the heating season, if the limiting figure is the lowest average temperature which can be tolerated without operation of the heating system. The mean daily temperature of 65 deg. Fahr. has been selected as the boundary of the heating season and any day in which the average temperature falls below 65 deg. Fahr. is considered one during which heat will be required. While this boundary will vary according to individuals and local conditions, the American Gas Association found by careful study that this represented about the lower limit which would be tolerated, on the average, before heat was demanded. With an average outside temperature of 65 deg. Fahr., it can readily be imagined that the room temperature during the day would more than likely be high enough for comfort and the temperature would drop below 70 deg. Fahr. only at night after the time of retirement. Degree-days represent relative heating loads. Supposing that the average difference in temperature maintained for a 24-hour period was 60 deg. Fahr., as for example when the inside temperature was maintained at 70 deg. Fahr. against 10 deg. Fahr. outside, the number of degree-days would, under these conditions, be 60. Again suppose that the average difference in temperature maintained for a 48-hour period was 30 deg. Fahr., the degree-days would under the second condition be $30 \times 2 = 60$. The fuel consumptions of any given plant for the two cases would be equal. To extend this illustration still further let us assume that during the month of January, for a certain locality, the average monthly temperature was 34.2 degrees and the

inside house temperature was maintained at an average of 65 deg. Fahr. Then the average difference in temperature between the inside and out for January would be $65 - 34.2 = 30.8$ deg. Fahr. Since there are 31 days in January, the degree-day load of this month under the conditions specified would be $30.8 \times 31 =$ 954.8. Similar calculations can be made for the other months of the heating season and the totals for the year obtained. In this way we will find that Baltimore has a heating load of about 4,600 degree-days while New York City which has winters which are obviously somewhat more severe has a load of about 5,300 degree-days. Jacksonville, Florida, has a heating load of only about 1,000 degree-days.

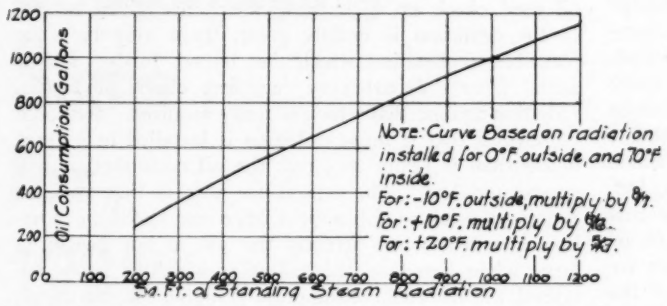


Fig. 1—Oil consumption per 1000 degree days for various sizes of steam jobs

What the Practical Man Wants

Now, after all is said and done, what the practical oil burner man wants is some chart or table which will allow him to estimate in advance the fuel consumption for a given job, or, where someone is registering a kick about how much oil is being consumed, to be able to determine just what is a reasonable figure to strive for. The above discussion of the fundamental basis and meaning of the degree-day conception is merely to give the reader some elementary notion of what it is all about.

Since the many installations with which we are concerned have different characteristics any handy figures or graphs for estimating the oil consumption must necessarily be average figures. The biggest variable of course is the efficiency of heating, probably best termed as the seasonal heating efficiency. By seasonal heating efficiency we mean the efficiency with which the total quantity of oil purchased per season by the owner is utilized in heating the house. Now this kind of a figure requires some rather intelligent assumptions because of the many factors involved. Some of these might be mentioned. Take the smaller jobs, particularly when converting from coal to oil burning. The boiler efficiency of the smaller job is frequently not very high. In the larger jobs the boilers are relatively better, combustion volume more nearly adequate, and the overall efficiency is much greater. To give one figure for the oil consumption per square foot of radiation per season obviously would introduce an error. The writer has tested many burners in various types of boilers and also collected data on the fuel consumption of many actual installations. Such data allows one to establish reasonable seasonal efficiencies for jobs of various sizes. It is then possible to combine such material with the useful degree-day conception in order to devise graphs and figures which will be of immediate practical value to the oil burner man. Thus, it is assumed that in order that fuel consumption figures will be of value to the busy practical man all such troublesome assumptions as heating plant efficiency, loss due to piping, etc., should be taken care of automatically, at least approximately, by such figures.

Curves for Fuel Consumption

The curves of Figs. 1 and 2 show the fuel consumption in gallons of light domestic burner oil for various sizes of hot water and steam heating plants for a heating load of 1,000 degree-days, assuming radiation is figured for 70 deg. Fahr. inside and zero outside. All that is necessary to use such a chart to estimate the fuel consumption in your locality is to determine the number of degree-days and make the necessary adjustment. Take for instance the case of Boston, Massachusetts. Let it be required to determine the number of gallons of fuel which will be required per year for a heating job of 500 sq. ft. of standing steam radiation in Boston assuming the radiation has been figured for 70 deg. Fahr. inside and zero outside. The number of degree-days heating load for Boston, Massachusetts, is about 6,055. Entering the curve in Fig. 1, we find that the number of gallons required for 500 sq. ft. of radiation and 1,000 degree-days is about 550 gallons. We must then multiply this number of $6,055 \div 1,000$, which gives $550 \times (6,055 \div 1,000) = 3,330$ gallons of oil per year should be the approximate requirement. Similarly if the radiation were 500 sq. ft. of water radiation instead of steam, the reference would be to the curve of Fig. 2 and under such conditions the approximate requirement would be $360 \times (6,055 \div 1,000) = 2,180$ gallons of oil. Similarly, suppose the fuel consumption be required for an installation of 500 sq. ft. of standing steam radiation at

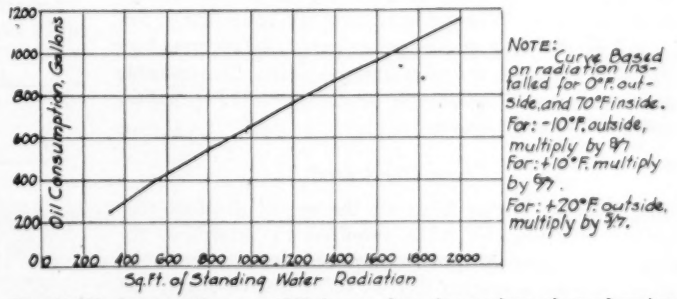


Fig. 2—Oil consumption per 1000 degree days for various sizes of water jobs

Baltimore, Maryland, assuming again 70 deg. Fahr. inside and zero outside. The number of degree-days for the Baltimore heating season is approximately 4,591. Thus, from Fig. 1 as before, we determine the value of 550 gallons for 1,000 degree-days, so that for Baltimore the fuel consumption for 500 sq. ft. of steam radiation should be $550 \times (4,591 \div 1,000) = 2,525$ gallons. Please note that in the use of these curves the

only data required are (1) the amount of standing radiation and type of system; (2) the number of degree-days heating load for the locality, and (3) the temperature conditions for which the radiation was figured.

Factors Considered

With regard to the first factor, the square feet of installed radiation, bear in mind that if a house is over-radiated, the excess radiation does not require any fuel. Therefore in order that a true estimate can be made for a given house, the amount of radiation which is truly required should be used in estimating the probable fuel consumption. Take for instance a house in which there is installed 700 sq. ft. of standing radiation, but, only 600 sq. ft. are actually required. So far as fuel consumption is concerned the figure of 600 sq. ft. of radiation only is significant. This means that when we are quite desirous of getting a good estimate of the radiation requirements of a given structure, we should estimate the required radiation and determine whether the correct amount is installed. When insufficient radiation is installed the curves presented in Figs. 1 and 2 do not hold good.

The second factor, the number of degree-days heating load must be obtained from some tabulation such as those which have been mentioned above.

The third factor—which is based upon the outside temperature for which the heating system has been figured, is given in Figs. 1 and 2. In order to demonstrate the use of this factor let it be required to estimate the probable fuel consumption for a southern city such as Savannah, Georgia, having a heating load of 1,517 degree-days and assume that the radiation has been figured for 70 deg. Fahr. inside temperature and 20 deg. Fahr. outside temperature. Let it be assumed that there is installed 500 sq. ft. of standing water radiation. From Fig. 2 for 500 sq. ft. of water radiation, it is seen that 360 gallons of oil are required for 1,000 degree-days, for radiation based on 70 deg. Fahr. inside and zero outside. This must be multiplied by the factor 5/7 in order to convert to the temperature conditions for which the radiation was figured, according to the conditions of the problem. When this is done we have $360 \times 5/7 = 257$ as the true consumption per 1,000 degree-days for 500 sq. ft. of water radiation. Thus the probable seasonal oil consumption will be $257 \times (1{,}517 \div 1{,}000) = 400$ gallons per season.

Cases Illustrated

In order to further illustrate the use of the fuel consumption curves, let it be required to determine the probable number of gallons required for Lincoln, Nebraska, having a heating load of 6,231 degree-days. Let it be assumed there are 500 sq. ft. of steam radiation installed. The radiation having been figured for 70 deg. Fahr. inside temperature and —10 deg. Fahr. outside temperature. From Fig. 1 the consumption corresponding to 500 sq. ft. will be $550 \times 8/7$ in order to adjust for the different outside temperature. The probable seasonal fuel consumption will then be $550 \times 8/7 (6{,}231 \div 1{,}000) = 3{,}916$ gallons.

In these figures there is no reference to the loss due to piping or the efficiency of the plant, these bothersome factors are what the writer has attempted to incorporate in the curves given in Fig. 1 and Fig. 2 so that the user need not be concerned with them.

It should be interesting to check the oil consumption of various jobs which come to the attention of the reader in order to determine how closely the actual figures for oil used check up with those which are given herein. If the deviation is unduly great, there may be some plausible explanation which can be set forth. If the actual figures depart very far, first check the actual radiation against that which is really required. It should be obvious that if more radiation is installed in a given house than is really required, the oil consumption will appear too low. The reason for this is that you are judging the job as if it were a large one, based on radiation installed, when actually the job is not nearly so large when based on the radiation which is really required. If the fuel consumption is higher than it should be according to the curves, check the setting and adjustment of the burner. The curves presented in a former installment of this series, shows how to determine efficiency when the CO_2 content of the stack gases and the stack temperatures are known. In the absence of a stack gas analyzer, at least determine the stack temperature. If the stack temperature is excessively high this in itself points to comparatively high stack losses, even if the CO_2 content is not known.

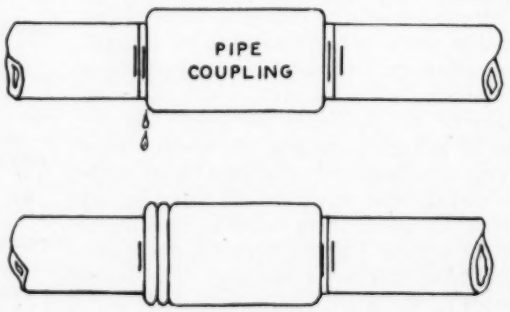
There is sufficient data contained in Figs. 1 and 2 to establish charts or curves of fuel consumption for any locality for which the degree-day heating load is known. For individuals who use such material frequently to do so would perhaps be a wise procedure.

Job and Shop Practice

Good Way to Fix a Leaky Coupling

THE accompanying illustration will show a little trick that can be applied to advantage to stop a leak on a pipe coupling.

Set an ordinary pipe cutter on the coupling, with the cutter wheel as close to the leaky end as possible. Tighten



up on the cutter and give it a turn or two. Then remove the cutter and repeat the operation, making the second cut as close to the first one as possible.

Cut deep enough to close the leak, but without cutting through the coupling.

This method will often be entirely effective.

Some Encouraging Signs for 1931

AT THIS stage we have to recognize that the visibility is bound to be low, and draw inspiration from a common sense realization of the underlying resources and strong recuperative powers of this country, as demonstrated over and over again in the past."

This accurate description of the immediate situation is quoted from the monthly letter of the National City Bank of New York for December. But even since that letter was issued there have been other developments, other reports, which give something more definite upon which to form a judgment as to the course of events in the coming months.

IN THE first place, there has probably never been a more critical scrutiny given American business methods, with the consequent assurance that some of the things which were done during the boom times will not be repeated when business is again piling up momentum. The National Association of Credit Men, which has been described as an "aggregation of about 30,000 highly practical and conservative persons," is quoted as not only "anticipating a quickening of business, but also assumes that it may be so aggressive in its manifestations that we may resume our old habit of taking long chances on credits when conditions are rosy."

Against this possibility the association has warned its members several times recently, and it is quite likely that normal business will be a great deal more profitable than it was in the past. And business recovery will be quickened by just the degree that credit practices are prevented from becoming a drag. The association seems to be determined that improper credit granting shall be reduced to the minimum.

ANOTHER factor that is going to work against practices that have served to produce the "profitless prosperity" we heard so much about will be the President's Conference on Home Building and Home Ownership. Dr. John M. Gries, for many years chief of the division of building and housing in the department of commerce is executive secretary of the conference and has said that second mortgage money for homes has cost so much that these costs "have killed the goose that laid the golden eggs" and have impaired seriously the home construction industry and its important quota of employment in many collateral branches.

Thus another drag is to be removed from the home building operations of the country. Unquestionably with excessive costs removed from such financing as may be necessary over and above the first mortgage, there will be a greater willingness to build. Prospective home owners will not be under the necessity of waiting until the sum at their disposal is sufficient to carry the actual costs, plus the unreasonable financing charges on a part of that cost. It is interesting to know that the study of this situation has been going on for more than a year, because the government naturally wanted to be on firm ground before going ahead with a definite program.

IT IS, of course, essential to a speedy recovery that the country have money to spend. The most comforting fact in the present situation is that there is ample money, in liquid form, to finance a recovery of tremendous proportions. The latest figures available for savings show that, up to June 30, 1930, savings accounts in this country had shown an increase of $267,180,000 during the year ending on that date. This is in sharp contrast with the loss of $195,305,000 a year ago on that same date, when we were booming along. The total savings on June 30, 1930, had

"Going Up"

reached the astounding total of $28,485,000,000, which is the highest figure ever established.

Add to that figure the $8,000,000 which the building and loan associations of the United States report as their assets. From financing 50,000 homes in 1901, the building and loan group has grown to the point where, in 1928, it financed 615,000 homes. The amount of money loaned on mortgages in the year last mentioned was $2,153,000,000, an increase of almost twenty times the amount loaned in 1901.

The official report of the national group indicates that, even allowing for the falling off in 1929 and 1930, "it is safe to predict that 1930 will show a distinct upward curve. With 1931 we are again ready to start on the upward swing . . . a swing which is sure to come bringing with it the prosperity which accompanies widespread building operations."

ONE other factor was cited recently by a keen student of business conditions as indicating the direction in which the wind will blow during 1931. He called attention to the fact that the automobile industry is preparing for a year of big production. These preparations are being made on the basis of automotive statistics which seem to show that the cycle in that industry travels in three-year periods. This brings 1931 into the logical position for the big up-swing, and the industry is apparently accepting that reading of its statistics.

ABOVE all it has been interesting to note that, even in a year of difficulties, there were firms making money and scoring gains. Wherever this has been done it has followed the adoption of a definite determination to follow a certain line of action. A number of manufacturing firms who had showed gains for the first three quarters of 1930 listed the causes as: No cuts in salaries, increasing or maintaining advertising programs, improving dealer relations, intensifying sales efforts, studying consumers' requirements. One firm said: "Sales territories have been reduced in size to enable salesmen to do more intensive work." Another attributed the new record made, in part, "to the sizable increase in our advertising appropriation, and to increased sales effort."

Among contractors in our own field, there is every indication that those who had aggressive sales plans were not unduly worried over conditions. Here is a letter from one contractor: "People talk of hard times. 1930 has been a banner year. More business than ever before which will prove that the business is there if you go after it." Another typical case was that of a contractor who has developed a truck repair service in a middle west city, having studied every angle of the matter, to the point where he has had no difficulty whatever in keeping his trucks and his men busy, although other contractors were looking for work.

IT HAS been said that "One idea in selling in any community may make the difference between good and bad business conditions." That is borne out by the experience cited, and the many others that could be told. Perhaps in the idea of "certified plumbing" and "certified heating," aggressively pushed on a national basis there is the "one idea" that will help to make the difference between good and bad conditions in our own industry.

At any rate it stands as definitely established that there is business to be had by those who go out after it with a strong willingness to sell. It does not seem that there is anything, even in a year of reduced buying, to stop effectively the man or the company that has a carefully worked out policy and a willingness to work instead of waiting.

FOR such men there is the help of the factors cited in the earlier paragraphs of this article, and there is the help that comes from the outlook of the American people. Perhaps that outlook can be summed up in no better words than those used by President Hoover at the American Bankers' convention in Cleveland during October:

"In conclusion I would again profess my own undaunted faith in those mighty spiritual and intellectual forces of liberty, self-government, initiative, invention, and courage, which have throughout our whole national life motivated our progress and driven us ever forward. These forces, which express the true génius of our people, are undiminished. They have already shown their ability to resist this immediate shock. Any recession in American business is but a temporary halt in the prosperity of a great people."

Savings Deposits Are Now Highest in History

Group Connections

for Lavatories, Sinks, and Other Elevated Fixtures

By S. M. BARR

A STUDY of the waste and vent connections for groups of elevated plumbing fixtures, such as sinks, lavatories, drinking fountains, etc., has been made. The variety of connections that are being used on these groups of fixtures are so numerous that it will be necessary to devote two separate articles to the subject.

The illustrations that are shown are not in any instance the product of the writer's own imagination, for each one of them is taken from the pilot drawing of some city in this country.

A picture of a thing often makes a strong and lasting impression. Therefore, simply because certain methods are shown in illustrations and because they are taken from pilot drawings, does not mean at all that such methods are excellent or advisable. It takes such a study as this to show how much there is in plumbing codes and pilot drawings that ought not to be there.

Wrong Practices

Many times wrong practices get into codes and pilot drawings through ignorance, but probably more often because such practices have been in use so long and handed down from past generations of plumbers to such an extent that to the local plumber who has grown up under such practice it would be almost sacrilege to doubt their excellence. This latter cause is due to ignorance too, so it really may be said that most of the wrong practices are the result of ignorance. On the other hand, many practices are debatable.

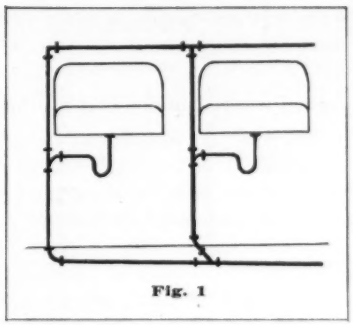


Fig. 1

The simplest group connections would be those shown in Fig. 1, where only two fixtures are to be considered.

A few cities will allow the use of a drum trap to serve two elevated fixtures, with the trap above the floor as in Fig. 2, or below the floor as in Fig. 3.

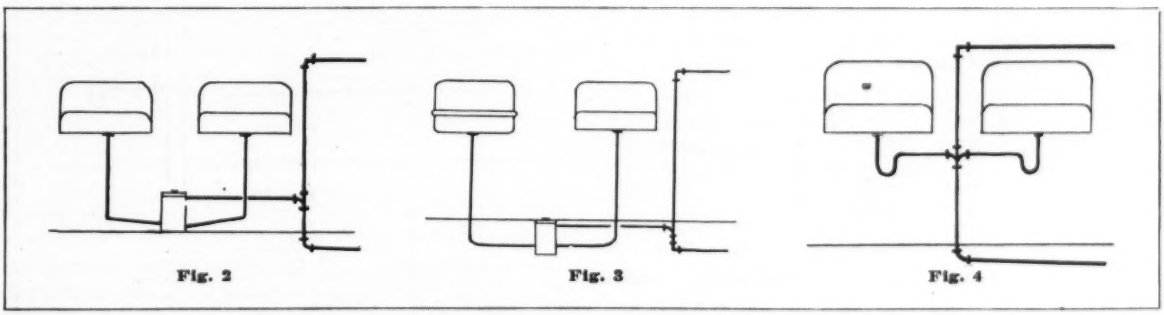


Fig. 2 Fig. 3 Fig. 4

A most excellent method of handling the connections for a pair of elevated fixtures is to give them a common waste and vent, as in Fig. 4. This is called a unit vent, and is one of the good results coming from the introduction of continuous venting. Often the use of the unit vent results in a considerable saving in cost of construction, this saving concerning both labor and materials. It is unexplainable that in a very few instances use of the unit vent is discouraged by plumbing officials. The only thing we can see against it is that with a drain-

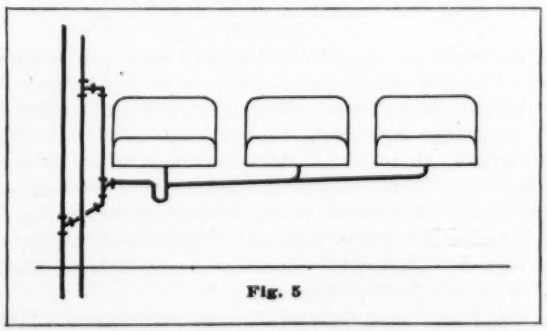


Fig. 5

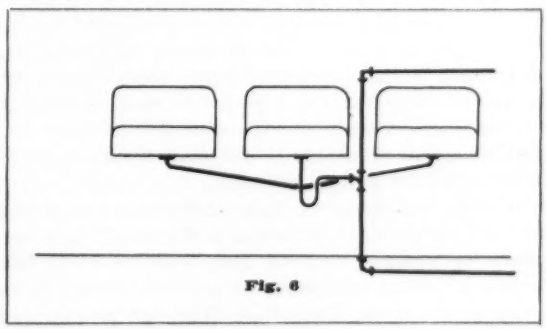


Fig. 6

age fitting with very short radius, waste from one fixture might possibly shoot across into the waste of the other.

Each Fixture Should Have Trap

Personally we think no installation is quite so good as the one in which each fixture is served by its own individual trap. At the same time a great many plumbing codes allow two and three fixtures of the elevated

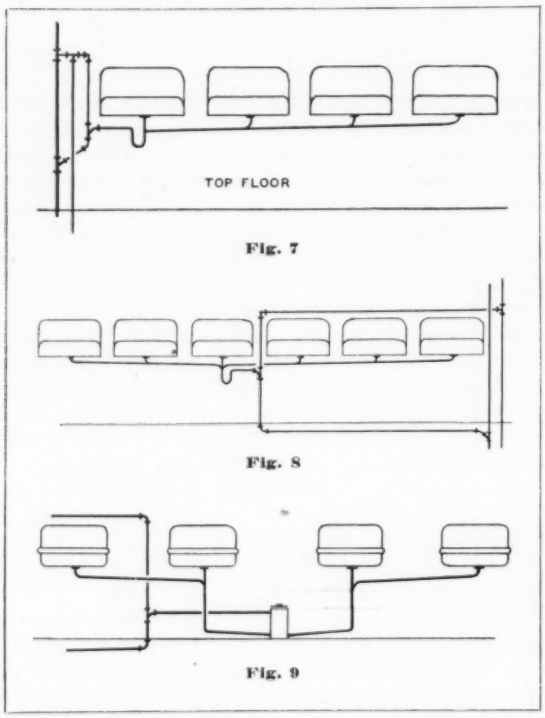


Fig. 7

Fig. 8

Fig. 9

type, such as lavatories, sinks and drinking fountains to be served by one trap.

When three fixtures are served by a single trap, probably the method shown in Fig. 5 is most common. Here the trap is under one of the end fixtures, leaving a long exposed waste line to the other two fixtures.

The Hoover code sponsors the use of a single trap for two and three lavatories in the following rule:—"Each fixture shall be separately trapped by a water-seal trap placed as near to the fixture as possible, except that a set of not more than 3 laundry trays or lavatories or a set of 2 laundry trays and 1 sink may connect with a single trap, provided the trap is placed centrally and the branches connect into the trap seal at an angle of not more than 60 degrees to the vertical arm."

It should be noted in the foregoing regulation that the branches to the two end fixtures must connect into the seal of the trap. In a way this provision acts to keep the fixtures more separate and distinct from each other than they would be if the three wastes came together above the seal of the trap.

As a general thing we have found that the Hoover code and report work plumbing problems out in a very satisfactory manner. In this case, however, as we have already intimated, we prefer to see each fixture in the group served by its own trap. The two strong arguments against this practice are that when there is trap trouble in such installations as shown in Fig. 5 or Fig. 6, all three fixtures for the time being are out of commission, whereas when each has its own trap, only the one fixture is affected when the trap or its waste becomes clogged. An answer to this argument is that in most instances where a group of lavatories is installed, the fixtures are much in use, the water is hot and then there is not great danger of stoppage.

The second objection is that the use of a single trap for a group of fixtures allows fixture wastes of considerable length to send out offensive odors into the toilet room. Fig. 5 is worse in this respect than Fig. 6. We certainly feel sure that there is less offensive odor in a toilet room in which each lavatory has its own trap set close to the fixture, than in the case where three or more fixtures depend on one trap.

No Information in Code

In many instances the plumbing code gives no information whatever on such a subject as the one we are discussing, but perhaps the pilot drawing will go into it to quite an extent. Fig. 7 illustrates such a circumstance. This illustration is taken from the pilot drawing

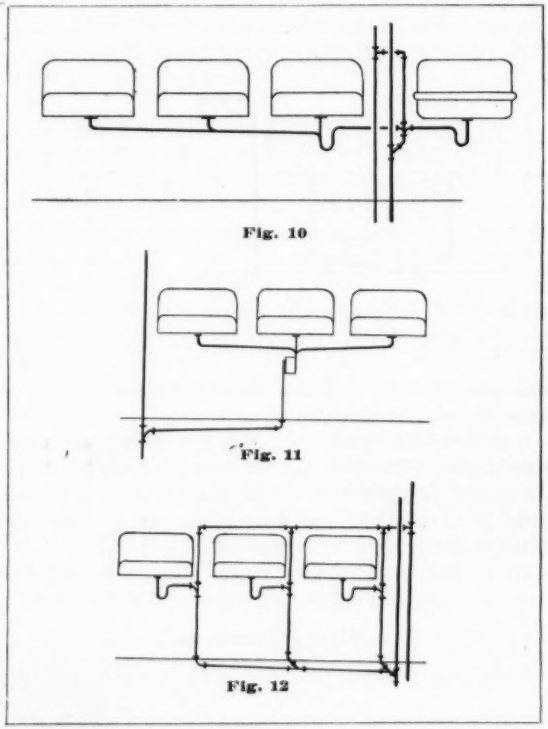


Fig. 10

Fig. 11

Fig. 12

of an important city. Whether more than four fixtures would be allowed on the one trap we do not know.

Another pilot drawing shows an equally bad condition, as illustrated in Fig. 8.

From another one of these drawings which is supposed to point the way to model plumbing practice, we find such a combination of connections as seen in Fig. 9.

Whether it is one or another of the connections shown in Figs. 5, 6, 7, 8 and 9, all have the same defects, which have already been pointed out.

Fig. 10 shows a slightly different combination. Here

a group of three lavatories is served by the one trap, but instead of connecting the sink into the same trap, as in Figs. 7 and 8, evidently the limit of three fixtures cannot be exceeded, and the fourth fixture is therefore given a separate trap and connected with the group of three into a unit vent. This seems a very good idea.

In Fig. 11 we see three fixtures all connected to one unvented non-siphon trap.

Referring back to Fig. 7, it is clear that the separate

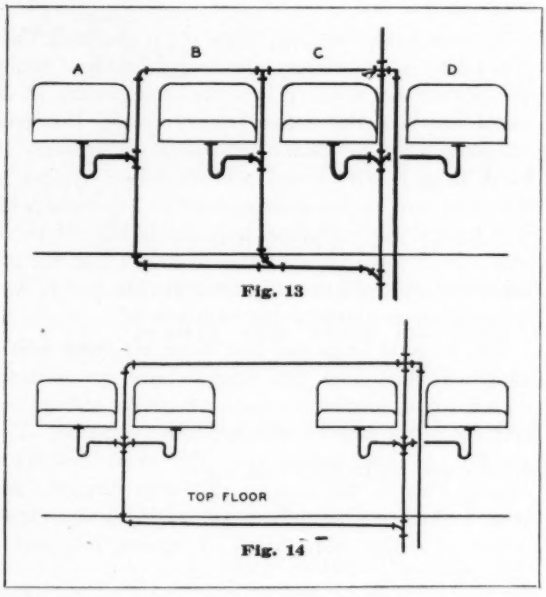


Fig. 13

Fig. 14

venting of this trap is entirely unnecessary. The group of fixtures is on the top floor and the trap close to the stack. This would allow the trap to be stack-vented, thereby saving the expense of providing the separate vent connection.

Inconsistency in Practice

We have mentioned the fact that unit vents were not allowed in some places. An illustration of this strange practice is to be found in Fig. 12, which is copied from a pilot drawing of a city whose plumbing code specifically states that this type of vent shall not be used.

To show the inconsistency of some plumbing practice, this same city allows the connections of Fig. 13. Here lavatories A and B must have separate vents, and must not use a unit vent. The next two fixtures in the group, however, because they are close to the stack and on either side of it, are allowed to connect into a double-T-Y on the stack, thereby making a unit vent, which for the other two is prohibited.

Another pilot drawing shows the group handled in a common sense way. Here not only the two lavatories close to the stack have a unit vent, but the detached pair of fixtures is allowed the same advantage.

This is shown in Fig. 14. The two drawings very clearly illustrate the point in question and the simplicity of the unit-vent connected group stands out prominently. All installations should be made simple as correct plumbing will permit.

In another article other combinations of connections for groups of elevated fixtures shall be considered.

Effect of Temperature on Human Beings

THE arrival of winter means better working conditions, for it has been found that high temperatures have an adverse effect on efficiency, production and safety, the chief surgeon of the Bureau of Mines, Dr. R. R. Sayers, declared recently.

He pointed out, however, that abnormally cold weather has a similar effect. The kind of work performed governs the optimum or ideal temperature of the environment most conducive to human comfort and at which the body works most efficiently, it was added. Further information from Dr. Sayers follows:

> "Probably the most comfortable temperature for human beings at rest and normally clothed, taking into consideration both humidity and air movement, is 66 degrees Fahr. The comfort zone, though, ranges from 63 to 71 deg. Fahr. For a person doing only mental work the comfort zone would probably be about the same. But physical labor would have the temperatures in the zone according to the amount of energy exerted. At about 59 deg. the ideal would likely be reached at which a man performing a considerable amount of work would be comfortable."

H. M. Vernon has concluded from a study of different occupations that probably a temperature of 60 to 65 deg. Fahr. is the most suitable for ordinary machine work.

Temperatures probably have less effect on persons doing mental work than on those performing physical labor. But when it gets too warm a man is likely to become sleepy and groggy while exerting his brains, and if it grows unusually chilly and he becomes uncomfortably cool, effective thinking is also hindered.

Mr. Vernon, considering data from two munitions factories and a projectile plant on industrial accidents in relation to temperature, observed that in both men and women the minimum accident frequency was at 65 to 69 deg. Fahr.

At lower temperatures it gradually increased to a similar extent in men and women till at 50 to 54 deg. Fahr. it was 35 per cent greater than at 65 to 69 deg. Fahr. At temperatures below 49 deg. Fahr. the frequency fell off slightly, which may have been caused by inability of workers to keep up their usual rate of production because of cold.

Temperatures in excess of 65 to 69 deg. Fahr. were accompanied by a slight rise in the accident frequency for women and rapid increases for men. The difference is likely due to heavier work often done by men and the greater exertion required, which made high temperatures more trying.

The effects on people of seasonal variation, as described by Ellsworth Huntington, indicate that in the temperate zone there are two periods in which health and efficiency are greatly decreased in comparison with the other seasons of the year and even many deaths result. In the Northern Hemisphere these periods are during the coldest months of the year, January, February and March, and during the hottest months from the middle of July to the middle of September. The other months of the year are the most favorable from the standpoint of health and energy. While the diseases incident to the two periods are different, the net result to health and efficiency, is about the same.

Editorials

The New Year

WE should be very courageous, indeed, if we attempted to set down here any prophecies for 1931. Elsewhere we are indicating certain elements that are at work on the constructive side. But the most inveterate of business prophets are phrasing their ideas about the new year cautiously.

As we see it, there is one big factor that is on the side of improvement—probably the biggest factor of all. That is time. And every day its value increases. We are fifteen months away from the stock market break, and even longer than that from the beginning of the downward movement of business. That fact has two distinct bearings on the situation. The first is psychological. Human beings are not constructed so that they can remember even unpleasant things with a continued vividness. We forget. Time dims the greatest of griefs. And as we draw farther and farther away from the troubled autumn and winter of 1929-30, the strength of our feeling of pessimism wanes and our confidence grows.

The second bearing which time has on recovery is physical. For fifteen months we have been using up things—clothing, food, machinery, automobiles, buildings of all types—these have suffered the usual wear and tear and must be replaced. Replacements mean sales. The wheels of production must begin to turn, employment must grow, and with employment will come again the satisfying of needs first, then luxury wants, which means more production and more employment.

Time is on the side of recovery, and this much is certainly true: We enter 1931 looking forward in hope rather than backward in despair.

Someone Is Making Money

IT is always interesting to talk to a man who has just had his first contact with plumbing and heating contractors in a number of cities. Invariably he is enthusiastic about the fact that he has met a number of contractors who seem to be going serenely on their way, getting business at a profit, when others are complaining about conditions.

Over a period of years this experience has held steadily true. Man after man has returned after a swing around the country. And each one has been attracted to these successful contractors in the various cities he has visited. Each one talks of plumbing and heating problems in the light of what he has seen and learned of these contractors.

This has been true so consistently that we can not help commenting upon it, and trying to find in it the "lesson for the day." The turn of the year, coinciding as it does with a turn in business affairs, makes it worth while to seek out facts that may have a significant bearing upon future trends.

Why is it that there are these men who seem always able to pilot their businesses successfully even during a difficult year? Why can one man write us that "1930 was a banner year," while another marks it down as anything but that?

It seems to be true that, as the old poem about Casey Jones had it, somewhere the sun is always shining. We suspect that where it is joyless and gloomy, in this world, it means that some "mighty Casey" has struck out—has made a mistake somewhere in guessing the curve along which business was traveling. We are not referring now to the general state of affairs in which it is natural that everyone feels the falling off in volume. It is when volume is at its height that the mistakes are made which carry over into the period when the sales curve shows a downward trend.

But, in good times and bad, there are those who go along on sound lines, take what volume can be had at a profit (and, of course, create volume by selling), and keep out of the free-for-all competitive scramble. They are not, by any means, only the small contractors. Among them is the type of man who can get "cost-plus" contracts when others are watching the regular round of tricks—bid played off against bid, and all the rest of it.

It is needless to discuss the matter in any detail. What we suggest is that sales representatives, both of manufacturers and wholesalers, might look over the districts they cover to see just where the contractors of the type we are discussing are located, with a view to concentrating their selling efforts.

Because, of course, business is on the way to getting better. It will all happen as it has so many times before. We will discover that business is a little better and will timidly speed up things a bit. Then we will find that business continues to improve, and so, faster and faster we will go.

As we have mentioned elsewhere time is on our side, every day carrying us farther away from sore memories, and furnishing better figures for comparison with a year ago.

Once again every unit in our industry will be under the necessity of making the old choice between volume and profit. It is sincerely to be hoped that the type of sales management practised during that coming time of renewed activity will lean towards selective merchandising. If it does, it means a drawing in of the lines of distribution to sane proportions and an elimination of the tendency to multiply outlets in boom times.

This is a lesson in business economics that America greatly needs—and it would be a fine thing if the plumbing and heating industry showed the country the way.

PLUMBING & HEATING MERCHANDISING

"The Association's Job"

The association's job is to act as the entering wedge for all of its members. By its educational efforts in making the public realize the value of their service, it breaks down a part at least of the sales resistance the contractor must be ready to meet. Then it may go a step farther in taking on definite merchandising tasks — such as those described in the following pages. The call on associations today is for more, and more constructive leadership. It is a pleasure to notice the efforts of those groups whose merchandising is described in this feature section. They have accepted in a determined mood the tasks imposed by leadership, and their membership can estimate the value of belonging to these groups in a very definite way.

TAPPING JOBS AT THE SOURCE « « HEALTH LEADERSHIP SELLS « "GUARANTEED PLUMBING" « FEATURING PRICES.

Milwaukee Heating Contractors Carry Sales Effort to Source of Jobs

"We believe that personal contact on individual projects at their inception is of far greater value to members of our association than additional general mailings. We have set up a card file system that permits us to follow every project in Milwaukee County from its inception."

THE outstanding fact about the campaign of the Heating & Piping Contractors' Milwaukee Association covered by this article was its special direction. After one general mailing, the plan adopted called for personal contact on those interested in proposed buildings. Richard Hollis, who is business manager for the association, has this to say about the plan:

"We started off our intensive campaign on Certified Heating by mailing to all architects, engineers, designers, builders, and general contractors a letter with a membership list, a Certified Heating paragraph for specifications, and an accompanying broadside further amplifying the value of Certified Heating. We do not plan additional mailings, as we believe that personal contact on individual projects at their inception is of far greater value to members of our association. In this connection we have set up a card file system that permits us to follow every project in Milwaukee County, regardless of size, from its inception to its completion.

Personal Contact Best

"Owners of proposed residences who have had warm air specified are circularized, 'phoned, and called upon by the association personnel when possible. Association members specializing in residence work are notified of proposed warm air installations and furnished with equipment to attempt to substitute Certified Heating.

"It is the writer's personal thought that the best point of contact with architects and engineers for the value of Certified Heating is upon the respective projects as they arise. Our thought in this connection is that better results are obtained in attempting to get architects and engineers to specify Certified Heating on individual projects rather than to call upon these same gentlemen with just the abstract story of the advantages of Certified Heating.

"Consequently, the intensive work

Heating & Piping Contractors
Milwaukee Association

610 Michigan Street
Milwaukee, Wisconsin

MARQUETTE 1960

Proper choice of the type of heating to be used in your new home is one of the most important questions that confronts you. The ideal heating system should furnish you comfort, health, long time economy, permanence, ease of operation and cleanliness. Only in radiator heating are found these combined advantages.

The first cost of installation is offset by the advantages enjoyed and the economy effected. The increased value to the property and the added salability are factors upon which financial organizations are induced to loan the small additional amount necessary to obtain this desirable form of heating.

Enclosed you will find literature on CERTIFIED HEATING which will inform you of the reliability of CERTIFIED RADIATOR HEATING, together with many other interesting facts regarding the heating installation.

This is a non-profit service organization, one of whose purposes is to assist owners in securing radiator heating systems that are adequate in all respects. Consultation with us involves no obligation and you are invited to avail yourself of the services of this organization without charge to you.

Yours very truly,

HEATING & PIPING CONTRACTORS
MILWAUKEE ASSOCIATION

By_____
Richard Hollis,
Business Manager.

RH:DL
Enc.

This letter goes to those who plan to build a home, and most particularly if they are thinking of warm air heating

HOW SHALL WE HEAT IT?
EVERYDAY FACTS ABOUT HOME HEATING
HEATING AND PIPING CONTRACTORS MILWAUKEE ASSOCIATION
610 Michigan Street
Milwaukee, Wis.

This is first page of booklet of Milwaukee heating group—a part of the national heating association's campaign material

of this office will be to get in touch with all designers at the earliest possible moment after learning that they are writing specifications for any proposed project, with the idea of having them include the Certified Heating clause in their specifications. At the bottom of our list of members we specifically state that membership in this association is open to all heating contractors of good reputation who are willing to pledge themselves to adhere to association standards of engineering and workmanship. This is our most formidable weapon in combating the unscrupulous contractor who expects contracts at exceedingly low prices and then abuses the confidences of his principals by 'trimming the job.'

Radiator Heat in the Home

ONE of the most important questions confronting the prospective home builder is the type of heating to be used. Proper choice insures years of comfort and healthy happiness—unwise decision can mar the enjoyment of what otherwise would be a perfect home.

There are certain definite essentials which the ideal heating system should deliver, and the wise home-builder will take them all into consideration.

Included are *health, comfort, long-time economy, permanence, ease of operation* and *cleanliness.* Only in Radiator Heat are found these combined advantages.

Radiator Heat is genial warmth supplied by circulating low pressure steam, hot water or vapor through metal radiators. In properly planned radiator heating are combined all the knowledge and heating lore gained by mankind through thousands of years of experimentation with fire and heating.

Heat where you want it is always possible with Radiator Heat. Here the radiator is located under a window seat, often the most desirable place in the room for a heating unit.

This is the first page of the booklet, cover of which is shown on opposite page. The booklet is in colors, of course

At right is letter to architect or engineer to call his attention to Certified Heating standards

"Radiator heating, to survive and prosper, must consist of adequate quantities of radiation, properly sized boilers, and ample pipe sizes, all correctly fabricated and installed. Certified Heating is the guarantee for such an installation. Nothing will detract from the public acceptance of radiator heating quicker than inadequate installations that are expensive to operate. The first cost of Certified Heating should be no greater than that of an installation made without regard to any known code or the dictates of good practice. A Certified Heating installation is a definite assurance of sustained fuel economy over years of satisfactory heating plant service. With this thought in mind we believe that we have a motive that warrants the support of every architect, engineer, and designer in Milwaukee County, and we are making the intensive drive to obtain what we feel is a merited support for all heating and piping contractors' association members."

Heating & Piping Contractors Milwaukee Association

610 Michigan Street
Milwaukee, Wisconsin

MARQUETTE 3969

Your interest in any heating plant that you may design is that the system will economically furnish adequate heat. The published Engineering Standards of CERTIFIED HEATING assure you of a definite code scientifically devised with every factor considered, even to the record of prevailing winds in this region.

These Engineering Standards comprise the only workable code for the installation of radiator heating plants that guarantees the adequateness of quantities, sizes, and installation. The cost of CERTIFIED HEATING is no greater than that of systems installed without regard to a definite code or the dictates of good practice.

CERTIFIED HEATING is installed by authorized licensed contractors who are members of this association and affiliated with the Heating and Piping Contractors National Association. Every member of this association has pledged himself to adhere to the published Standards established by nationally known heating engineers after long and laborious research.

These Standards now have the sanction of the American Society of Heating and Ventilating Engineers, and CERTIFIED HEATING is your insurance of an adequate system, correctly installed.

Specify CERTIFIED HEATING installations and know that your client will obtain sufficient radiation, proper boiler capacity, adequate pipe and chimney sizes, and a system that will relieve you of embarrassment, and add to your prestige.

Yours very truly,

HEATING & PIPING CONTRACTORS
MILWAUKEE ASSOCIATION

By_____
Richard Hollis,
Business Manager.

RH:DL

"It is the writer's personal thought that the best point of contact with architects and engineers for the value of Certified Heating is upon the respective projects as they arise rather than to call upon these same gentlemen with just the abstract story of the advantage of Certified Heating."

Virginia Works With Health Department

R. H. GRIFFIN* tells how Virginia contractors and wholesalers are furnishing greatly needed health leadership in the state

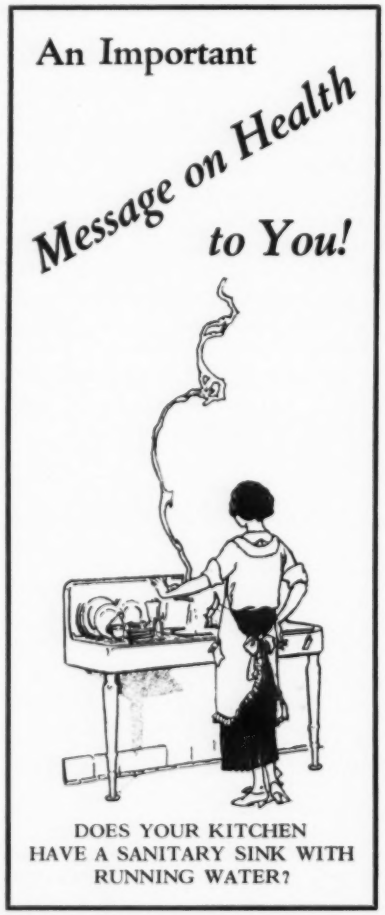
JUST about a year ago, in response to an appeal by Dr. Mary C. Brydon, since deceased, capable woman representative of the Virginia Department of Health of the Child Welfare Division, the Virginia Plumbing and Heating Educational Committee developed a folder described on the first page as "An Important Message on Health to You." The appeal of Dr. Brydon was made at the 1929 annual convention of the Virginia Associated Plumbing and Heating Contractors, Inc., meeting.

She asked for assistance in the rural districts of Virginia, where efforts were being concentrated by her department in a three-year sanitary campaign, then in its first year, to make the state more healthful by eradicating the cause of diseases such as typhoid, dysentery and other ailments that spread from ignorant and improper disposition of human waste. Candidly, she discussed her problem among simple minded mountain folk and other rural inhabitants who lived in a sort of primitive way, produced on a blackboard statistics that made her appeal clear and convincing, and closed her case by stating that not only would the citizens of Virginia benefit by the blessings of better health but that the plumbing industry would eventually derive a return on any investment it might make in this direction. Education was her theme—the carrying of a message that the most inexpensive sanitary plumbing fixtures actually could be procured by a people of little means. They wanted, she said, some idea of what they needed and the cost installed on the premises of their country abodes.

Education Needed

The need for an explanatory pamphlet or folder for use in county gatherings of country women, called together to consider the vital problems of living, was apparent. Here was a job for the Virginia Plumbing and Heating Educational Committee and this story tells how the problem was met and the results so far obtained.

It would perhaps be clearer to readers if something were said to explain the Educational Committee, its personnel and the objects it had in view when it was organized in the late fall of 1928.



This is first page of the leaflet described by Mr. Griffin

The Educational Committee is jointly composed of eight members of the Plumbing and Heating Industry—four men representing the Southeastern Wholesalers' Association and four men representing the Virginia Associated Plumbing and Heating Contractors. Its chairman since its inception is Mr. L. U. Noland, president of the Noland Company, Inc., of Newport News. Its purposes are purely educational, to encourage sanitation, to encourage among plumbing and heating contractors the use of modern methods of accounting and bookkeeping, to encourage inviting establishments and window displays, to advocate and stress the proper kind of advertising and merchandising, to urge the adoption of a monthly time payment plan in the distribution of plumbing and heating merchandise where these goods otherwise might not be sold, and to foster a state plumbing code that would be adequate in protecting the public.

Showing Merchandise—Priced

The task presented by the Health Department's representative appeared a simple one, yet when it was attempted several difficulties arose. First, preparation of the folder with a minimum installed price on each article embraced therein. This was overcome by the arriving at average figures for the average installation and setting under or opposite the article the words "as low as" and giving the amount. It was decided to feature an outside yard closet, a kitchen sink, a water pump with storage tank and septic tank as one unit, or grouped at a given minimum approximate installed figure; and individual average figures for a lavatory, a closet combination and a bathtub, with these units also placed together with the water pump and septic tank at a minimum approximate price installed. On the reverse side of the folder this explanation was given: "There are many kinds, types and sizes of water pumps, septic tanks, bathtubs, sinks, lavatories or wash basins. This Bureau wants to help you find the right kind for your home at the lowest cost to you for good quality materials. It is not always possible to give in a folder like this the exact cost of these comforts put into your home, because we don't know how far away your well may be from your house and how much

* Secretary, Virginia Plumbing and Heating Educational Bureau.

pipe may be needed for each job. But we can give you an idea of what the cost is likely to be to serve as a guide. Your plumber will help you in making the proper selections to fit your own needs."

The question of the best kind of distribution of this folder, once it were completed, was disposed of when the Department of Health consented to serve as the distributing medium by handing them out personally to county health officers and workers enlisted in the sanitary campaign who in turn would give them to those persons interested in, or in need of, the services indicated in the folder. In other words, as the Health Department organization in each county held conferences with the rural people, the folders were distributed with an explanation, and the headquarters of the Health Department at Richmond, the capital of the state, received a continuous supply for mailing purposes to meet the demand of those writing for them.

Twenty Thousand Copies Distributed

Twenty thousand copies of this folder were printed and at this writing all but a few have been distributed. The composition of the folder was in three colors—on goldenrod, smooth finished paper, black type, red prices. The symbol "It Pays to MODERNIZE Your Plumbing and Heating" was used on the front cover.

The folder was issued in the name of the Virginia Plumbing and Heating Educational Bureau and also carried this message: "The State Department of Health is urging that every Virginia home be equipped with safe sewerage. The Virginia State Chamber of Commerce and Virginia Polytechnic Institute are co-operating to have running water put into every country home. The Virginia Plumbing and Heating Educational Bureau is co-operating with all three groups and is sending out this folder as a suggestion of a way to help. The Bureau's efforts are educational only and all installing work is done by Master Plumbers in your vicinity. The Bureau hopes that the information contained in this folder will be of some value to those who are trying to make their homes more healthful to live in."

While it has not been possible to make a complete check-up to determine the installations brought about as the result of this folder, a sufficient volume of plumbing goods has been disposed of to warrant the belief that the folder was fully justified. Instances have come to the attention of the Committee of plumbing materials being used traceable directly to the folder itself. Shortly after the folder was issued one farmer equipped his home with a complete modern bathroom, the folder having directed his attention to the fixtures.

Some of the plumbing contractors who are alert on merchandising in the rural districts are using the folders in sales campaigns and canvassing the countryside in follow-ups. As the folder gives the recipient an opportunity to check over the materials that interest him or her, many of them sign it and return it to the Bureau's offices, thus giving excellent leads.

Aside from the work of promoting better health conditions in the state, it is safe and conservative to say that the folder has been very much worth while from a financial standpoint to the industry within the boundaries of the "Old Dominion."

TEAR OFF AND MAIL

I am interested in Better Health and Greater Home Comforts for my Home. I would like to have more information on what I have checked below.

Check (√) in ☐ Spaces

- ☐ **Water Pump (Gas or Electric)**
- ☐ **Septic Tank**
- ☐ **Kitchen Sink**
- ☐ **Bath Tub**
- ☐ **Wash Basin (Lavatory)**
- ☐ **Closet (Yard or Inside)**
- ☐ .....

Sign Name Here

.....

Address

.....

(Give Box No., County and Town)

My Plumber Is

.....

for Every Virginian

This postal card forms the last fold of the leaflet

This copy stretched across three pages of the leaflet and has produced inquiries and jobs

For Health's Sake—Sanitate Your Home—

The Low Cost Will Surprise You

There are many kinds, types and sizes of water pumps, septic tanks, bath tubs, sinks, lavatories or wash basins. This Bureau wants to help you find the right kind for your home at the lowest cost to you for good quality materials.

It is not always possible to give in a folder like this the exact cost of these comforts put into your home, because we don't know how far away your well may be from the house and how much pipe may be needed for each job. But we can give you an idea of what the cost is likely to be to serve as a guide. Your plumber will help you in making the proper selections to fit your own needs.

On one end of this folder you will find a post card with spaces to be filled out showing what you are interested in.

Just fill out, sign your name and address, stamp and put in the mail.

Virginia Plumbing and Heating Educational Bureau

109-110 Builders Exchange Building, Richmond, Virginia

Glendale Association's "Guaranteed Plumbing" Campaign Wins Big Increase for Members

By TOM WHITE

PLENTY of publicity, judicious advertising regularly placed, followed by running down every lead—many of which come from their customers themselves. This, in a few words, is the simple formula that has been outlined and adhered to by the Glendale, California, Merchant Plumbers' Association. That it has worked out to their satisfaction has been proved by the fact that their volume curve has shown no appreciable sag below the normal level of business.

The Glendale masters commenced their advertising campaign in February, 1930. Since then the proportion of all installations in the city handled by members has shown an increase of 200 per cent.

There is nothing erratic or jerky about their publicity methods. Like the drops of water falling on the granite boulder, they keep everlastingly pounding away with their printed messages, week after week, week after week.

They Keep at It

In January the association signed a contract with the Glendale *News-Press* which called for a ten-inch display advertisement to be run every Saturday. This amount of space is frequently exceeded, sometimes doubled; every sixty days they use three columns of space twelve inches deep, or 36 inches, when the majority of the membership comes in for an individual tie-in. On these occasions, close to a solid page is given over to the plumbing and heating industry.

An understanding was had with the publishers that with each display advertisement there was to be a suitable write-up, the material for which originates, as does the copy for the advertisement, from the office of the secretary, John R. Denning.

The pith and substance of each of the regular Saturday display ads of the Glendale Merchant Plumbers' Association is two-fold: it features the association seal and what it stands for, and it emphasizes guaranteed plumbing. In the minds of the average householder the development of these two points might well be made separately—such a method would be entirely justified; but in the style of double-barreled publicity as adopted by the Glendale masters, both the seal and the guarantee are played up interdependently.

A two-column ad five inches deep, carrying a terse, direct message, the whole set off by a bold device in the shape of a seal, is bound to be striking; and when it appears week after week, sometimes six inches deep, often occupying three columns, its persistence and regularity carry prestige and accumulate momentum.

Merchandising the Association Seal

Virtually everyone in Glendale and many in the near-by adjoining communities have seen the association seal at some time or other during 1930, most of them many times. Every association man in the city displays it in his show windows, carries it on his trucks and has it printed on his letter-heads, envelopes and statement forms. Those who have missed seeing it so displayed have not failed to notice it in the advertisements; and the man on the street who sees it every day readily recognizes the device when he encounters it spread out on the page of his newspaper. For a solid year the Glendale association has been telling what is back of the seal. They have been telling and are still telling the home-owner, the housewife and the builder that the seal means several things, all of which may be summed up in one word—responsibility.

This word strikes a responsive cord in the public mind, more especially in this day of quantity production and hurry-up jobs. Sensing the popular reaction to such a policy, the association is putting a brand new punch into the phrase: "Guaranteed Plumbing"; and they're putting such a real, live punch into it that every day more and more new customers are insisting upon having their work done by none other than "guaranteed plumbers."

The major jobs and many of the small ones are inspected and checked by an association employee. Finally he asks, "Are you satisfied with the material and workmanship, Mrs. Smith?" This is something new to the average householder. Mr. Den-

YOUR GUIDE TO GOOD PLUMBING

The ASSOCIATION SEAL

A SIGN OF BETTER INSTALLATIONS THE NATIONAL ASSOCIATION OF MASTER PLUMBERS OF THE UNITED STATES INC. DEPENDABLE SERVICE QUALITY GOODS

That you might more readily recognize those whose ideals of workmanship, whose standards of quality, whose integrity of purpose recommend them to your service, this seal serves as the banner under which our members are pledged to "Better Installations—Dependable Service."

Wherever you see it, on a little store or vast establishment, it stands for just one thing: Conscientious high standards of workmanship. Thus, the Association Seal is your guide-mark and your safeguard.

A GUARANTEE:

This Association guarantees the work of each of its members against defective materials, incompetent workmanship, and against overcharge.

Make sure of a quality job without extra cost by seeing that your plumber displays this seal.

GLENDALE MERCHANT PLUMBERS' ASSOCIATION
Douglas 6420

One of the regular Saturday ads of the Glendale association

ning says that this personal interest, even after the job has been paid for in some instances, is not only most gratifying to the home-owner but that it also inspires a real, abiding confidence in the man who did the work and the materials he used.

This attitude on the part of the public is priceless. It not only keeps the sag out of the business curve for the time being, but lays a strong foundation for future volume.

Aside from the confidence-building qualities of these newspaper ads, they frequently carry pointed suggestions such as "Restore youth to your home by replacing those old plumbing fixtures with modern equipment. An additional shower stall in an unused closet will solve the problem of the overcrowded bathroom," thereby sounding the modernizing note. Here's another: "There's quality even in hot water. You do not merely purchase a heater to give you hot water. What you actually buy is hot water service." Still another significant ad reads like this: "One bathroom isn't enough. It isn't enough for three—nor when there are visitors—if you wish privacy, comfort or convenience." A fourth example of this excellent publicity, selected at random, carries this message: "The finishing touch is the secret of a charming home. Added charm may be attained with colored tiling and fixtures, an additional lavatory, toilet or shower stall," this clearly being aimed at the most fastidious type of home-owner.

Publicity Used Regularly

Carrying equal if not even greater weight than the advertisements themselves are the write-ups appearing in the news columns on the same page on which the ads are run. Each write-up embodies some element of interest that lends to it an air of legitimate news. For example: "Odorless Gases Menace Health. Plumber Warns of Danger Liable to Follow Use of Inferior Fittings. One of the most dangerous forms of gases emitted into homes with faulty plumbing is of an almost odorless sort, according to Chas. F. Watson, president of the Glendale Merchant Plumbers' Association. One can readily detect the ordinary 'sewer gas' odor that comes out of untrapped street or home sewers. While extremely unpleasant, this is not so much to be feared as the odorless variety. Inferior quality fixtures and fittings installed, perhaps, by a handy man or the owner himself often have vital defects. Homes with proper plumbing equipment installed by a dependable plumber are safeguarded against any sort of sewer gas. Water seal traps, vents, and other precautions on a plumbing job insure both safety and health to the family!"

Due prominence to home-modernizing is also given in these write-ups, as witness: "Plumbing Easily Modernized Now. Value of Old Homes Can Be Maintained by Placing Up to Date Fixtures. The Merchant Plumbers' Association is launching a drive which is aimed to keep up the value of the older homes, according to John R. Denning, its business manager. 'Many people,' said Denning, 'will put up with disadvantages because they do not realize how easily modern equipment can be installed, and they hate to think of leaving the home they have occupied for many years. Also, house-owners wonder why their property is becoming so difficult to keep rented and why its revenue has dropped. Equipment as essential to comfort and sanitation as plumbing is to the home certainly must be kept up to date, or that house loses both in market and income value. It is surprising with how little difficulty a house which was built from ten to twenty years ago may be made as modern in its plumbing equipment as one built yesterday'."

The following headings on as many news stories indicate the range of subjects handled: "Noises in Pipes Reveal Defects." "Tinted Plumbing Fixtures Shown." "Urges Need for Good Plumbing." "More Baths for Homes Vital." "Wrong Type of Burner Costly." "Two Bathrooms Enhance Values." "Citizens Benefit by Building Code." "300 Feet of Pipe in Average Home." "Rigid Plumbing Inspection Vital."

"The entire public is interested in our industry," said Mr. Denning. "When a home is finished and the family moves in, very little thought is given to the brick masons, the carpenters or the glaziers; but not a day passes without some representative article sold by the plumber being called into use many times. We should not lose sight of this head start, but rather we should keep our public informed and interested. As our association members see it, the best way to accomplish this end is through the medium of consistent advertising."

The copy here merchandises a second bath. It was published in DOMESTIC ENGINEERING

ONE BATHROOM ISN'T ENOUGH

It isn't enough for a family of three—nor when there are visitors—if you wish privacy, comfort or convenience.

One of our members will gladly show you, and without obligation, how to fit an extra bath in your home.

OUR GUARANTEE IS BEHIND THE PLUMBER WHO DISPLAYS THIS SEAL

A SIGN OF
BETTER INSTALLATIONS
THE NATIONAL ASSOCIATION OF MASTER PLUMBERS OF THE UNITED STATES INC.
DEPENDABLE SERVICE
QUALITY GOODS

Glendale Merchant Plumbers' Association

Phone Douglas 6420 **Free Information Bureau**

Permits drop 38%
Warm Air Jobs drop 42%
But
Radiator Heating
Increases 13%

When Cleveland Heating Contractors Advertise

By B. Y. KINZEY

THE Heating & Piping Contractors Cleveland Association feels that its 1930 merchandising of Radiator Heating has been a success as the tabulation of heating permits issued for residential work indicates.

It is rather unusual that during a year when the construction of residences dropped over 38%, and the installation of warm air dropped over 42%, that the installation of radiator heating should increase almost 13%. However, such are the facts in the home construction in Cleveland.

This result was brought about by going into the less expensive home field where warm air had been used in the past and selling radiator heating. It was done because of the co-operation of all branches of the industry in pooling advertising and sales effort. The campaign not only sold the association group, but merchandised prices for typical homes.

Progress too, was made in the sale of radiator heating in modernization work, although there are still many thousands of homes where radiator heating can be sold if the proper effort is put forth and one of the main projects of the Cleveland Association during 1931 will be the sale of Radiator Heating in old homes through the use of house-to-house salesmen and proper advertising support.

WHEN THE SUN FAILS—USE RADIATORS FOR WARMTH AND COMFORT

Snug and Cozy With Radiator Heating $745

This charming small home will always be comfortable because it has radiator heating installed according to National standards under the supervision of the engineers of this Association by a responsible contractor. The oversize boiler will supply the ten radiators amply under the most severe conditions and the radiators mean continuous comfort because they are placed to counteract heat losses, two in the living room, one each in both kitchen and breakfast nook as well as down stairs lavatory and dining room. Each bedroom has a size to more than compensate for the windows and exposure while the bathroom will not be chilly when one steps from the tub.

INEXPENSIVE RADIATOR HEATING

Radiator heating is truly inexpensive because the small additional first cost is soon saved in lower fuel bills, lower repair bills, less care to operate and more comfort for every member of the family. The building and loan will lend most of the difference and it will come back if you ever want to sell.

Owners, buyers and builders of real estate should read "What About the Heat?"

Heating and Piping Contractors—Cleveland Association
1227 Prospect Avenue, Cleveland, Ohio MAin 1444

Deferred Payments

You may enjoy the comfort of Radiator Heating in your present home immediately and arrange for small monthly payments.

Heating & Piping Contractors Cleveland Assn.
1227 Prospect Avenue, Cleveland, Ohio.

Kindly send me your booklet, "What About the Heat?" as offered in your advertisement.

Name .....

Address .....

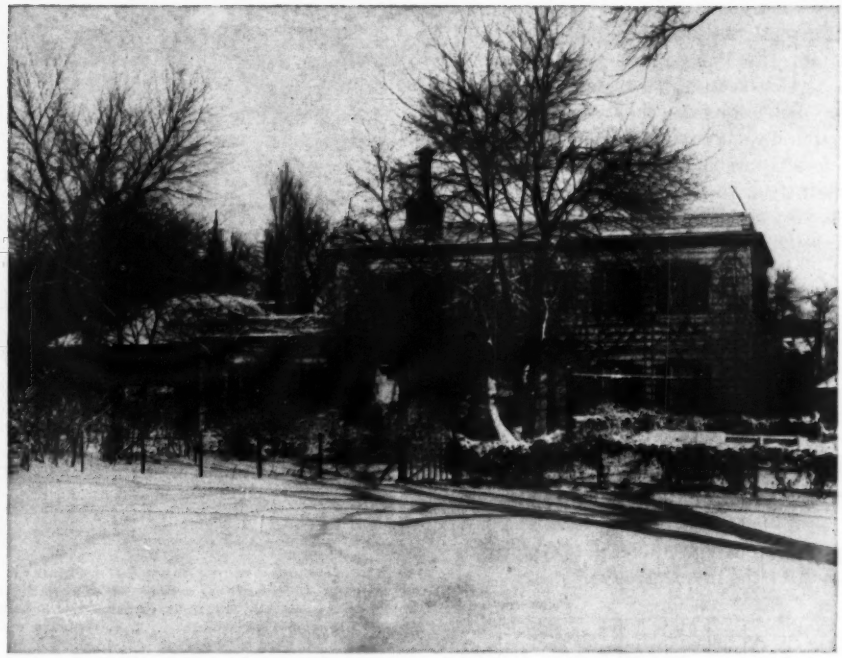
P. O. .....

This is one of the Cleveland ads that gave typical plans and price for radiator heating

TOTAL RESIDENTIAL HEATING
CUYAHOGA COUNTY, OHIO—1929 AND 1930

	Hot Air		Unspecified Radiator				Total	
	1929	1930	1929	1930	1929	1930	1929	1930
Up to $5,000 Single	1046	818	160	67	13	35	1219	920
Double		2						2
$5,000—$6,000 Single	498	149	117	32	12	11	627	192
Double	2	2	1	1			3	3
$6,000—$7,500 Single	380	175	125	50	46	62	551	287
Double	3	3		1			3	4
$7,500—$10,000 Sing'e	200	104	115	41	79	121	394	266
Double	10	12	11	1			21	13
$10,000—$15,000 Single	98	23	44	12	132	166	274	201
Double	40	18	1	1	12	10	53	29
$15,000—$20,000 Single	4	1	7	4	49	38	60	43
Double	1	1			6	2	7	3
$20,000—$25,000 Single	1			1	37	21	38	22
Double					1	1	1	1
Over $25,000 Single	1		1		61	38	63	38
Double		1 forced			1	1	1	2
	2284	1309	582	211	449	506	3315	2046
	Loss	975	Loss	371	Gain	57	Loss	1269

	1929	1930
Radiator	13.54% of total	24.73
	16.42% of specified	27.88
Warm Air	68.89% of total	63.98
	83.58% of specified	72.12
Decrease in Residential Building Permits		38.28%
Decrease in Warm Air Heating		42.69%
Increase in Radiator Heating		12.92%



This home is heated by gas. The equipment is shown on the third page of this article. Note the extension on the chimney seen in the middle of the photograph

Chimney Construction

And its relation to condensation from gas house heating equipment

By C. GEORGE SEGELER
Industrial Engineer, American Gas Association

ALTHOUGH the subject of condensation of water and formation of acids in chimneys has come up for attention and has been recognized as an important situation demanding action by the gas fraternity, it is not fair to draw the conclusion from such activity that anything like a universal problem exists in regard to the subject. There are both technical and commercial aspects to the situation which are well worth a careful consideration.

The legislative aspect to the problem is of great interest because the drainage of chimneys connected to gas equipment would undoubtedly come under the jurisdiction of the various state plumbing inspectors. It is important that these groups be properly informed on the necessity of dealing with condensation from chimneys and on the best methods of doing it. It will fortunately be unnecessary to require the drainage of all chimneys; nor does it follow that because drainage of chimneys is occasionally required in one town, it will be desirable in another.

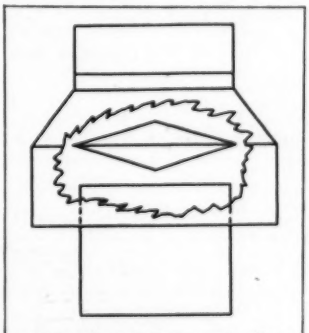


Fig. 1—Diagram of the back-draft diverter

The proper understanding of condensation of water vapor from flue gases presupposes a knowledge of their composition, temperature and volume. This has been studied recently and the results are summarized here.

The result of investigation of various gases is shown in Table 1. This gives the flue products of four characteristic gases such as are in common use in various parts of the United States. In the first columns the constituents of the gas in per cent by volume have been tabulated, then the cubic feet of air required for each cubic foot of gas burned, both for theoretically perfect combustion and

for average combustion conditions such as are found in central house heating appliances using gas which bear the American Gas Association laboratory seal of approval. The next four columns show the average flue products produced for each cubic foot of gas burned.

All approved gas equipment must have draft hoods (also called backdraft diverters) as shown in Fig. 1. These draft hoods are installed in a vertical position* as close as possible to the boiler, and act in three important ways**:

1. So that gas boiler may operate without any draft other than that provided by the design of the appliance itself.
2. So that air from the cellar may be added to the flue gases to reduce their dew point.
3. So that draft in chimney or back draft will not affect the operation of the appliance.

Table 2 which follows shows the flue gas conditions just ahead of the backdraft diverter, the gases being the same as considered in Table 1.

Table 3 indicates the flue conditions in a typical chimney flue as found after the diverter.

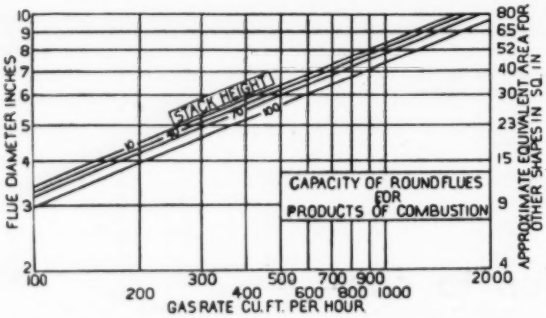
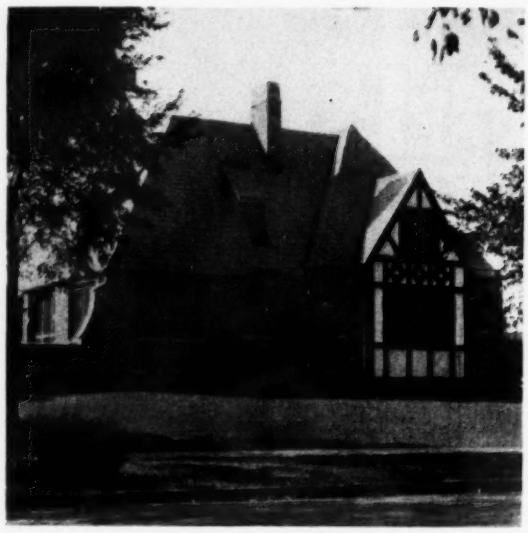

FLUE DIAMETER INCHES
APPROXIMATE EQUIVALENT AREA FOR OTHER SHAPES IN SQ. IN.
STACK HEIGHT
CAPACITY OF ROUND FLUES FOR PRODUCTS OF COMBUSTION
GAS RATE CU. FT. PER HOUR

Fig. 2—Size of chimney flues desirable for use with gas burning appliances, based on gas range in cubic feet per hour

Anyone dealing with the problem of water vapor condensation should be familiar with the fundamental physical laws governing this phenomenon. The first term which will be used frequently throughout this article is **partial pressure.** By this is meant that portion of the total barometric pressure in a chimney stack contributed by any one of the flue gases. Although the pressure in a chimney is slightly below normal barometric pressure, because of the draft in the chimney, the values of this draft expressed in inches of mercury are extremely



The foremost requirement of a chimney is that it shall have a satisfactory draft. It should be carried at least 2 ft. above the highest point of the building as shown here

small, as is well known. It is therefore quite proper to assume that the partial pressures are proportional to the concentrations in which the various flue products occur. Dalton's law of partial pressure states that each gas exerts a partial pressure equal to that pressure that the gas would exert if the same weight of gas as present in the mixture were present all by itself in the space in question. From this it follows that partial pressures are proportional to the concentrations expressed in volumes.

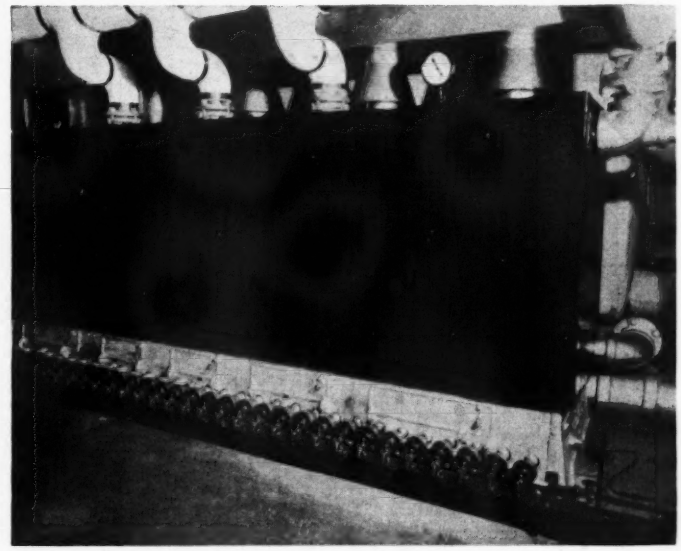
From Table 3 it will be seen that a typical natural gas such as obtained at Cleveland, would yield 25.2 cubic feet of total flue gases for each cubic foot of gas burned. Of this 25.2 cubic feet, 2.4 cubic feet would be water vapor—that is to say, about 10 per cent is water vapor. Since the pressure in the chimney for all practical purposes is normal atmospheric, this means that the partial pressure of the water vapor is about 10 per cent of an atmosphere. From the Marks and Davis steam tables, it is found that the condensation point corresponding to a partial pressure of 0.1 atmosphere is 112 deg. Fahr. In a similar manner the dew point, or condensation point, for the other typical gases has been calculated.

The Milwaukee practice, which is rather different from the general practice throughout the gas industry, should be noted. No backdraft diverters are used on central house heating appliances in Milwaukee. As a result of this, the dew point of the flue gases in Milwaukee is at

* Some research is being done on horizontal diverters.
** Installation of gas heating equipment without draft hoods is practiced in isolated localities. See Gas Age-Record, Mar. 17, 1928, Chimney Flues, Vent Piping and Drains by H. J. Dropp.

Table 1
Table of Gas Combustion Based on Burning of 1 Cubic Foot of Gas

Gas	Constituents of Gas—Percent by Volume									Cu. Ft. of air required for each cu. ft. of gas burned		Flue Products for Average Combustion Cu. ft. per Cu. ft. of gas burned			
	CO	CO_2	H_2	N_2	O_2	CH_4	C_2H_6	Illuminants C_2H_4	Illuminants C_6H_6	Perfect Combustion	Average Combustion	O_2	CO_2	N_2	H_2O
Natural Gas, Cleveland,	.....	.....	.....	1.3	.....	80.50	18.20	.....	.....	10.70	15.00	1.0	1.2	12.4	2.2
Retort Coal Gas, Horizontal	8.6	1.5	52.5	3.5	0.3	31.4	.....	1.1	1.1	5.00	7.00	.3	.5	5.5	1.2
Coke Oven Gas, Koppers	6.8	2.2	47.3	6.0	0.3	33.9	.....	2.6	.9	5.23	7.50	.4	.5	5.6	1.2
Carburetted Water Gas	33.4	3.9	34.6	7.9	0.9	10.4	.....	6.7	2.2	4.37	7.76	.5	.7	6.8	.7



This gas heating installation, in the home shown on the first page of this article, illustrates the use of back-draft diverter. All of the vents from the burner sections are connected to the common breeching

slightly higher temperatures. As indicated in Table 2, the approximate dew point for Milwaukee gas should be in the neighborhood of 130 deg. Fahr., whereas the dew point of house heating flue products where a back-draft diverter is used is some 10 to 20 degrees lower.

What Are the Flue Temperatures?

Central house heating gas appliances operate at minimum efficiencies of 75 per cent for steam and hot water boilers, and 70 per cent for warm air furnaces. Since the equipment itself is very well insulated, the radiation loss does not run much over 5 per cent. This leaves a flue gas loss of about 15 to 20 per cent to be accounted for. The temperature corresponding to flue gas losses of this magnitude is far above the condensation point. The average flue temperature conditions of appliances bearing the A. G. A. laboratory seal of approval are as follows:

	Boilers
Flue temperature	255 deg.-365 deg.
Per cent CO_2 in the flue gases..At 255 deg.	8.4 per cent
At 365 deg.	7.6 per cent

Right at this time it might be well to point out that over-ventilation which will result in lower flue temperatures, also results in lower partial pressures of water vapor, so that no direct conclusion can be drawn from a consideration of the flue temperatures alone. They must be considered in connection with the complete flue gas analysis.

Nevertheless, there are some cases when condensation occurs. It is evident that the flue conditions must be extremely poor when condensation can occur under the conditions mentioned. Reference to Table 3 will show that the average dew points are not much above room temperature.

Outside chimneys are the principal cause of condensation troubles. As the flue gases pass up the chimney, the layer next to the exposed side of a chimney flue can very readily be chilled below their dew point. At the same time, the average temperature of the flue gases would be well above the condensation point. This particular phenomenon has been the subject of an extensive investigation on the part of the British gas industry.* The British report states that the temperature gradient across the average flue is steeper than previously supposed. Remixing of the flue gases at the point where condensation begins is suggested as a possible remedy. This would raise the surface flue temperatures above the dew point.

When Condensation Occurs

When condensation occurs, it is nothing but distilled water which is forming on the cold surfaces. This in itself would be practically harmless if it were not for the presence of a small quantity of sulphur in the original gas. State laws, which are strictly enforced, restrict the sulphur as follows: hydrogen sulphide, absolutely none; organic sulphur (carbon bisulphide principally), not over 30 grains per hundred cubic feet (average gas company practice keeps this figure between 5 and 25 grains per hundred cubic feet). The burning of this sulphur produces sulphur dioxide (perhaps some sulphur trioxide too), which is soluble in the condensate water. Sulphurous (and/or sulphuric) acid are formed in this way, and the destructive action of this material is too well known to require further comment. The solution of sulphur dioxide continues until quite a high concentration of the acid is reached.

The acid condensate water is destructive to brick and mortar, as well as the metals used for the vent connection between the appliance and the chimney flue. Such materials as cast iron, vitreous tile, glazed sewer pipe, and certain other products are impervious to the action of condensate water. Therefore the connection of appliances burning manufactured gas should always be made to properly lined chimneys. All gas companies make an inspection of the chimney before completing the sale of gas house heating equipment and many of them refuse

* Gas Journal (London), January 15 and 22, 1930.

Table 2
Conditions in Typical Chimney Flue*

Ahead of the Diverter

Gas	1 Total Flue Volume	2 Partial Pressure of Water Vapor in Atmospheres	3 Volume of Added Water Vapor Due to Air Moisture	4 Corrected Partial Pressure of Water Vapor	5 Dew Point Deg. F.
Natural Gas, Cleveland	16.8	.13	.137	.14	123
Retort Coal Gas, Horizontal	7.5	.16	.064	.17	132
Coke Oven Gas, Koppers	7.7	.155	.068	.17	130
Carburetted, Water Gas	8.7	.08	.071	.085	106

*All values based on the burning of one cubic foot of gas.

installation where no proper linings exist, or arrange to have lining installed.

What About Joints?

The lining may be satisfactory but the joints should also be considered. This feature of chimney construction is summarized as follows:

"Sewer pipe besides having a desirable joint is specially glazed, making it impervious to water and acids, and is as cheap as ordinary clay liner. It is also made in fittings which should be used for offsets, inlets and turns of any kind. An acid-proof cement which is acid proof toward concentrated sulphuric acid, insoluble in water, may be used for the joints, as it only comes in contact with a very small quantity of vapors due to the tight bell and spigot joint of the pipe itself. Lead wool may be substituted for the cement and then should be covered over with cement mortar. Sewer pipe has only one disadvantage and that is its setting. It is found more difficult to set than ordinary square or oblong clay liner, as it has projecting bells, necessitating more mason labor in its supporting.

"Cast iron pipe makes an ideal liner for chimney as its joint does not depend on cement for a leak-proof joint. Cast iron is impervious to sulphur acids and water."

The more common glazed tile lining can also be satisfactorily joined with just ordinary care when the chimney is built. The tiles should be set square on top of one another with the thinnest possible bond of cement mortar between.

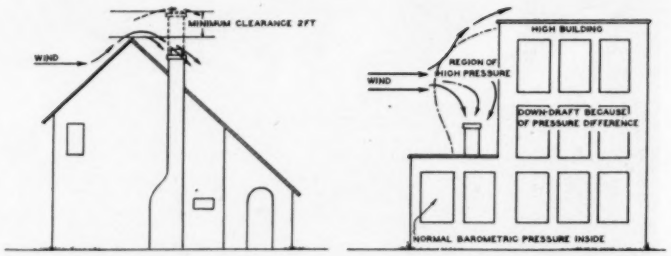


Fig. 3—Diagram showing the cause of back-draft in chimneys. If an inside pressure greater than the outside pressure could be maintained at all times, there would be no back-draft. Since this is impractical, the chimney is constructed so that it rises above outside high pressure areas

Table 3
Conditions in Typical Chimney Flue*
After the Diverter

Gas	1 Flue Products Including Air Added at the Diverter Cu. Ft.	2 Total Water Vapor Volume Cu. Ft.	3 Partial Pressure of Water Vapor in Atmospheres	4 Dew Point Deg. F.
Natural Gas, Cleveland	25.2	2.4	.095	112
Retort Coal Gas, Horizontal.....	11.3	1.3	.115	119
Coke Oven Gas, Koppers.....	11.5	1.3	.113	118
Carbureted Water Gas.	13.0	.82	.063	98

*All values based on the burning of one cubic foot of gas.

Natural Gas Is Different

Turning for a moment to those parts of the country where natural gas is used, an entirely different situation must be recognized. Natural gas is now available in 22 States, and from all indications its use is growing rapidly. The great advantage as far as flue construction is concerned is that natural gas contains no sulphur, and flue problems are practically unheard of in the natural gas areas. Even where very bad flue conditions exist and considerable condensation occurs, nothing much need be done about it save to provide a dry well at the base of the chimney flue, or possibly to drain the condensate, if it is excessive in quantity, to a nearby sewer. However, in making such a connection it must be recognized that the trap of such an installation is likely to dry out during the summer months unless provided with a special filling provisions, as rain water cannot be expected to keep the trap filled. Since there is a direct connection to the basement of the house through the opening at the backdraft diverter it is possible that an unpleasant situation might arise with a dry trap connected to a sewer.

The absence of sulphur in natural gas makes it possible to utilize common metallic vent connections without any trouble from corrosion.

What Time of the Year Is Worst?

Confining the study to manufactured gas, because the sulphur in that product causes the troublesome jobs, the conditions surrounding condensation can be further discussed. When will condensation take place? Experiences differ on this point, but general belief is that condensation is most serious in the late spring and early fall, because of the relatively intermittent operation of the equipment. This tends to keep the chimney walls at lower temperatures, and therefore condensation may occur. In the winter months, during the period of heaviest load, the chimney walls are kept hot by the flue gases. Of course outdoor temperatures can go so low that outside stacks will cool too much even if the equipment is burning steadily. This is one of the obvious reasons why exposed stacks are undesirable.

Conclusions

Conclusions that so far can be summarized are as follows:

1. Many chimneys built directly on gravel or sandy ground automatically take care of condensation if it should occur.

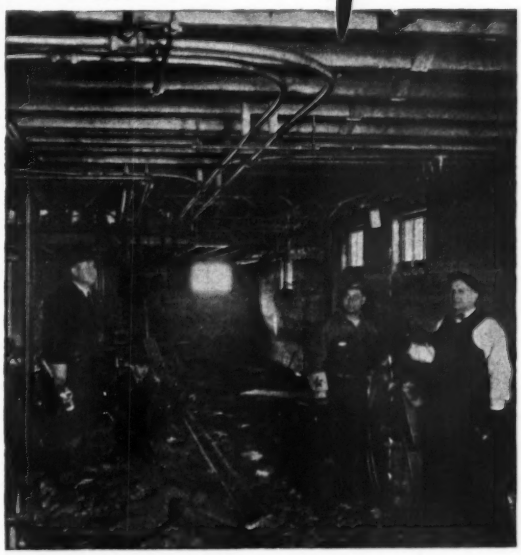
2. Chimney connected to gas fired boilers should be properly lined with the materials discussed in this article, or with other suitable lining materials which experience might dictate.

In these, should condensation occur, drainage is a simple problem.

3. Outside chimneys, especially with offset flues, form the bulk of the troublesome jobs, not only because of condensation collecting at the base, but because of open

THE STRONGEST CONNECTION FOR COPPER PLUMBING

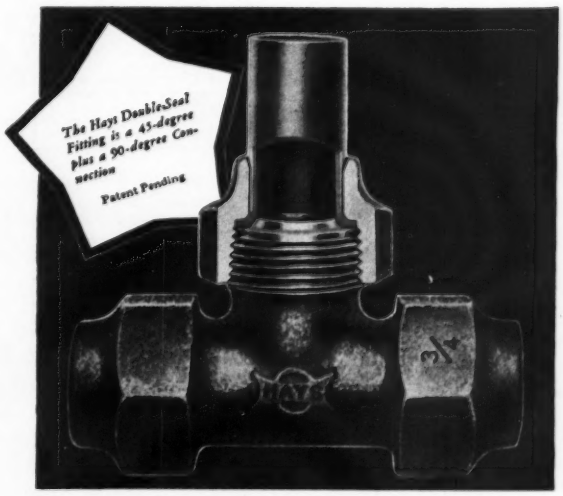
and here's why



Instead of just one grip on the copper pipe the Hays Double Seal Connection grabs hold of this pipe in two places.

Sealed twice, and sealed in such a way that pulls, strains and vibrations are all absorbed by the "shock absorber" 90-degree seat of the connection. That is the exclusive reason why the Hays Double Seal Connection is the strongest copper pipe connection.

The perfection of this connection has eliminated threading—permitting you to install lighter pipe without reducing the wall thickness. It has made copper plumbing practical —more economical for your customers and more profitable for you to install.



Let us send you some facts which we believe you may not now know—facts which we know will interest you.

HAYS MANUFACTURING COMPANY
ERIE, PENNSYLVANIA

HAYS
DOUBLE SEAL CONNECTION

64

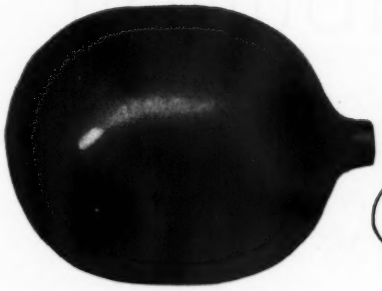
joints which may permit condensation to ruin plaster and wall paper.

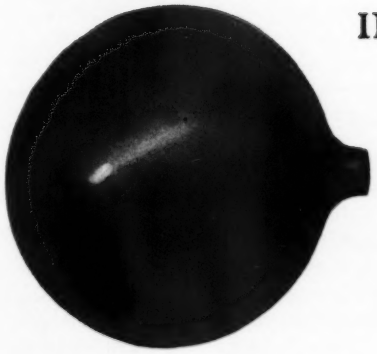
4. Trouble from condensation is encountered in about 2 per cent of the installations in a limited number of localities. Trouble in natural gas territories occurs very rarely, and with regard to the manufactured gas territory, reference may be made to Table 4, which is an analysis of the chimney construction and operating conditions in some twenty-one cities variously located throughout the United States.

(Continued on Page 73)

Table 4
Analysis of Chimney Construction

City	% Chimneys Causing Trouble	Cause of Trouble	How Corrected	Comment
Baltimore	2 to 3%	Outside chimneys and low flue gas temperatures	Drain to receptacle or dry well. Have a few cases where this is necessary	
Boston	About 5%	Long flue runs of 25 and 30 feet, hydrogen content of gas used, poor draft conditions	Usually poor draft conditions are corrected by lessening gas load which is equivalent to increasing the chimney capacity; increasing height of chimney to insure positive draft; using a fan (impeller of the blower should be chrome plated)	
Brooklyn	Very few	Too long runs	Drains, and in two cases blowers	
Buffalo	None from Gas Co. installations; some others	1. Too long horizontal run 2. Too large an outside flue 3. Down draft conditions	1 Nearer flue, or flue gas temperature raised by changing damper positions 2. Sometimes a brick removed from base of chimney to allow air to sweep through stack helps Sometimes a chimney lining is recommended and condensation allowed to drain into the cellar	
Chicago	About 2 or 3%	Chilling of flue products having a relatively high dew point	Sometimes leave a brick out of the bottom of chimney so that chimney is vented. In many cases we line chimneys with metal, etc., and run drains to sewers or through the floor when on sandy soil	
Cincinnati	About 2%	Products of combustion coming in contact with outside cold flue	Enlarge depth of cleanout. Drain to sewer. Suggest relining flues if not already lined	See attached Code for Cincinnati.
Dallas	No trouble			
Denver	First year 3% Second year 5% Third year 10%	1. Low stack temperature on gas designed installations 2. Chimney on north wall and built out from wall 3. Extremely high chimneys—2 and 3-story buildings 4. Chimney built of soft porous brick	All chimneys are lined with lead coated iron when the job is installed if the customer will stand the cost. On unlined chimneys, lining is installed at first indication of condensation. Should the chimney be in such bad condition as to require rebuilding, it is rebuilt with a vitreous tile lining. Have never found it necessary to put in dry well or drain to sewer	Cleanout openings in the chimney are provided on all jobs and customer is instructed to see that chimney is clear at all times.
Fall River	60% (Most of these are hot water installations)	Excess condensation is due to low water and flue temperatures on hot water installations and in a few instances to old flues becoming plugged	In some cases an attempt to ventilate the flue further has been tried and in others the gas consumption has been increased	Condensation has caused difficulty not only in flue but in old unlined chimneys causing disintegration of brick and mortar and stains thru the plaster.
Kansas City, Mo.	Considerable		Recommend to house owner to rebuild chimney under present building code, which requires tile lining	
Newark, N. J.	2%	High % H_2. Low flue temp. on hot water jobs. Cold chimneys.	Install 16-oz. copper lining, joined to drain condensation to bottom. Brought out, ends in tee and carried to dry well or sewer drain	
New Haven	½ of 1%	Outside chimneys, location of boiler, length of flue	Build dry well, substitution of draft leg in flue near chimney for draft hood in boiler, in one case had chimney rebuilt	Conditions in this locality do not necessitate extensive changes. In making installations conditions which may cause trouble are considered, particularly on hot water jobs.
New York	Very few, if any	Outside chimneys		
Philadelphia—				
Division A		Mostly where chimneys are built on outside of building with three sides exposed	Drain to sewer	
Division B	Practically none	Outside chimneys		
Division C	Had four	Poor draft conditions in three cases; one case chimney too small	Installed turbine ventilators at top of chimneys	
Division D	About 3%	Cold chimney, long flue runs, too much secondary air, other appliances connected to same flue	Dry wells	
Pittsburgh	No trouble			
Portland, Ore.		Outside chimneys; extreme chimney exposure; sluggish draft	If conditions do not permit remodeling flue, sewer drains and dry wells and in some instances blowers. Safety provisions made with blowers to avoid immediate trouble in case of failure of blower	Employ appliances not inherently condensation producers. Use of short vents. Inside flues when possible. Lining outside flues with glased tile. Bypass quantity of heat from firebox to vent to maintain temperature.
Rochester	1%	Construction, location, height, and type of appliance	Line chimney. Clean out if necessary. Increase height of chimney. Insulate flue with two layers of ¼-in. aircell asbestos from appliance to chimney	
Seattle	6 hot water jobs out of 650 installations of all types	Long vents, outside chimneys, low stack temperature, faulty construction of furnace, plugged flues, exposed vents	Increase gas consumption. Where chimney is new and damp build a fire in the chimney	Flues should be tile lined and installed in an inside partition. Vents should not be over 12 ft. horizontally (depends on flue gas temperature). Flues should be carried above highest point of roof.
St Louis	Practically all unlined flues	Down draft during the off period of the appliance, cooling flue	Line flue	
Washington, D. C.	2%			





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By Stokes

Insure your success this NEW YEAR!

Stokes

MOULDERS SINCE 1897

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The Mark (S) of Quality

Stokes

HARD RUBBER
IN EVERY CONCEIVABLE FORM

Make certain of a prosperous year by dealing only in quality products. A satisfied customer and many repeat sales is better than only one order based on inferior goods and low price, no matter how profitable it may be.

Suggest STOKES HARD RUBBER FLOAT BALLS to your prospects. Explain to them that hard rubber does not rust or corrode, that it is resistant to acids, that it is extremely durable.

STOKES HARD RUBBER TANK BALLS can be guaranteed for the life of the tank.

Write at once for Prices and Particulars

Jos. Stokes RUBBER CO.

Trenton N.J.

Canadian Plant, Welland, Ontario

Madburton—F-81-G (42" size, Finish)
The Madburton is made in these nominal sizes — 27 x 22"; 30 x 24"; 36 x 22"; 42 x 22". The square bowl in all sizes is 19 x 13½"

The Modern Madburton

The Madburton is representative of the best contemporary thought in plumbing fixture design. With its artistic proportions, graceful metal legs of chromard finish, its square bowl and dressing table convenience, it fulfills the present day insistence that design be beautiful as well as practicable.

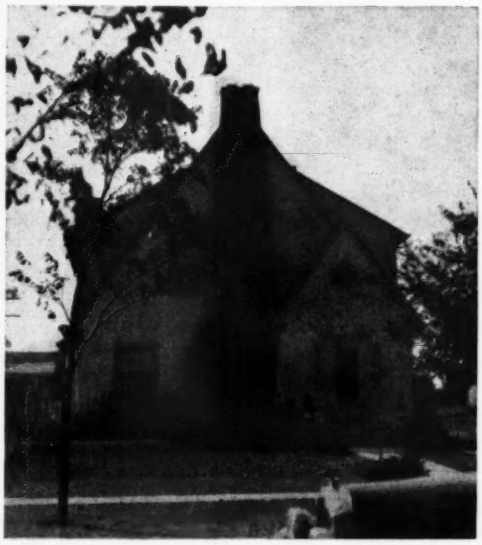
Standard Sanitary Mfg. Co. 106 SIXTH STREET, PITTSBURGH

DIVISION OF AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

"Standard" PLUMBING FIXTURES

Table 4 is worthy of considerable study. It will be observed that from 2 to 3 per cent of the installations seems to be the average estimate of the number of chimneys which cause trouble. Survey of the reasons given as to the cause of the trouble clearly shows that outside chimneys and long vent connections were the worst conditions encountered.

Methods of correcting condensation troubles are particularly interesting, because it will be seen that the conditions can be remedied in most cases by simple structural changes. The need for lined chimneys has been stressed in this tabular analysis and elsewhere in this article. It is a basic gas company policy to use lined chimneys with all gas burning house heating appliances.



Outside chimneys are the principal cause of condensation troubles. Although they lend architectural attractiveness to a building, they are very undesirable from the heating contractor's standpoint

Architects and builders are urged to construct their chimneys in this manner.

What Should Be Specified?

It has been suggested that specifications be devised for the construction of chimneys for use with gas boilers. The adoption of such specifications would undoubtedly improve chimney construction for all types of house heating appliances, and the principles involved, briefly summarized, should include:

That all chimneys be lined, where possible with No. 1 glazed sewer pipe or glazed lap jointed clay liners, having the bells of the sewer pipe, or the joints of the clay liners, facing upwards so that moisture will not leak out. Less desirable, but much cheaper and still satisfactory construction, is the use of ordinary glazed tile liners with the thinnest possible cement joints. Offsets should be avoided as much as possible, but where they occur, proper fittings should be employed.

Very often offset flues are encountered, especially on outside walls, where the offset is not equipped with any form of lining. Of course condensation, or rain for that matter, runs down into the open joint, so that trouble soon results.

Of special interest to the plumbing and heating trade in connection with the drainage of chimneys, is the possibility of ordinances being enacted setting forth the methods of chimney construction for gas equipment and drain construction. Analysis of Table 4 indicates that legislation for improving conditions is not necessary or even desirable, and would certainly prove burdensome to the general public. If any considerable proportion of the chimneys should cause trouble, it would certainly be most important to urge legislation to protect the public. Since new legislation brings with it the manifold problem of enforcement, the better method for forestalling trouble in the small percentage of chimneys involved is education of builder and architect to the modern chimney requirements. As a matter of fact, the policy of gas companies in connection with servicing their equipment and co-operation with dealers is such that the danger from unsatisfactory chimney operation is very much minimized. The gas companies throughout the country make very careful service inspections before permitting the installation of gas boilers, and the effectiveness of such inspection is proved by the small number of cases in which trouble has occurred.

Special Chimney Ordinances

Cincinnati and Portland (Ore.) have notable ordinances in regard to chimney construction, most of the clauses of which deal with the method of lining the chimney, the areas required, the capping of chimneys, and the distance which chimneys shall be required to project above the roof. The regulations do not require drainage, and reference to Table 4 will show the reason why. When condensation occurs in Cincinnati, the cleanout door is enlarged and deepened, permitting drainage to seep into the ground, and if necessary a drain to sewer is provided. In Portland the gas company supervision is very active and many excellent methods have been employed to remedy troublesome conditions.

Fig. 2 shows the size of chimney flue desirable for use with gas burning appliances.

No one realizes the need for good chimneys better than the gas house heating engineer. The foremost requirement of the chimney is that it shall have satisfactory draft; that is to say, the chimney must be carried at least 2 ft. beyond the highest point of the building, and the general principles involved are shown in Fig. 3. Second, the chimney must be lined. Third, there should be a cleanout door at the lowest accessible point in the chimney. And fourth, the chimney should be an inside chimney rather than an exposed chimney.

What About the Vent Pipe?

A satisfactory vent pipe connection is just as important as a good chimney. In fact, this part of the gas heating system deserves very careful attention because of the unsightly state into which vent pipes fall if any considerable corrosion takes place. Any gas house heating engineer will affirm that the hot water heating systems cause the greatest amount of trouble in regard to vent pipes. In order to see what effect flue gases had on different materials, a study has been made of some twenty-one cities in the United States. This survey covers the same cities reported in Table 4, and again there is a wide difference in the results obtained.

The question of which way to pitch the vent pipe is

often the subject of discussion. The quite general method is to pitch the flue up towards the chimney, even though this would have a tendency for condensation, if any, to run out at the apron of the backdraft diverter. However, the flue pipe is generally warm enough that condensation does not occur in it. In long run flues, they must be pitched up to the chimney, usually maintaining a rise of 1 in. to the foot of horizontal run. In short flues connected to boilers with good draft, the practice of pitching the flue down from the boilers is followed by some companies, the theory being, as is evident that condensation will run into the chimney and drain away. In general a length of 20 ft. horizontal run is the limiting figure for gas boilers.

The vent pipe should not have many turns and to reduce the friction as much as possible all turns should be of wide radius. Flue pipe after its installation should be strapped and wired so that a jar or accidental blow will not knock it down. The usual practice is to use straps frequently enough so that there are no unsupported lengths over 8 ft.

Do You Understand the Backdraft Diverter?

Although the backdraft diverter has been mentioned several times and has been illustrated in Fig. 1, a brief summary of the reasons for its use with all gas burning equipment may be advisable.

To raise the standard of gas appliances of all kinds, the gas industry, in co-operation with the United States Public Health Service, Bureau of Standards, Bureau of Mines, Master Plumbers Association, and Heating and Piping Contractors National Association formulated testing codes under which gas boilers and furnaces must be tested for approval. One of the provisions of these codes is that backdraft diverters shall be used on all gas boilers. The boiler must be designed to operate satisfactorily without any draft other than that caused by the appliance itself. Therefore, when a boiler is connected to a chimney, the chimney must only serve to remove the products of combustion which are being discharged from the appliance. There must be no pull on the boiler itself, and therefore a backdraft diverter is required.

When automatic gas burners are applied to existing coal boilers, which are not equipped with backdraft diverters, the question arises whether these appliances should be so equipped. Although the practice varies, it is the opinion of the leaders in the industry that converted, as well as gas designed, equipment should be provided with a backdraft diverter.

For Thorough Examination of Master and Journeyman Plumbers

By HARRY C. PATTERSON, Waukegan, Ill.

I AM wondering if all boards of examiners of plumbers are giving the attention it deserves to the matter of "Overhead Expense and Percentage Methods" when examining men for a master's certificate. I believe it would be a fine thing to require a man desiring an examination to read the book that DOMESTIC ENGINEERING has published on this subject, prior to the examination, and examine him very carefully on this subject.

My experience in the plumbing business covers thirty-five years, and about three years ago I was appointed as master plumber member on the Waukegan (Illinois) Board of Examiners of Plumbers, and I am still serving on this board.

The first thing I noticed, while serving on this board, was that in some instances masters and journeymen were signing applications without personal knowledge of the ability or experience of the applicant. Now we investigate the signatures on the applications before allowing the applicants to take an examination.

I also noticed that the questions, furnished by the Board of Registration and Education, were only ten in number, which were hardly enough to find out how much a man knew of the subject. I then began to perfect a system of examination, adding to and enlarging on it from time to time as experience dictated, until now we have a system that a man cannot pass until he is qualified to be a journeyman or master. This system has met with the approval even of the men who have failed in their first examination, because the questions cover a wide range, and it amounts to a schooling for them. When they find out how little they know about their business and trade they go back home and make a business of studying up on the subject, and when they come back again they thank us for the experience.

We give a man fifty questions to answer, each one practical, with no catch questions or questions requiring a college education to answer.

He must figure a set of plans, taking off the materials.

He must draw in the "ground work" on a blueprint we furnish.

He must draw a sketch of the "roughing in" of a plan we furnish.

He must draw a sketch of circulation.

He must figure a job and show us how he figures his cost and "overhead."

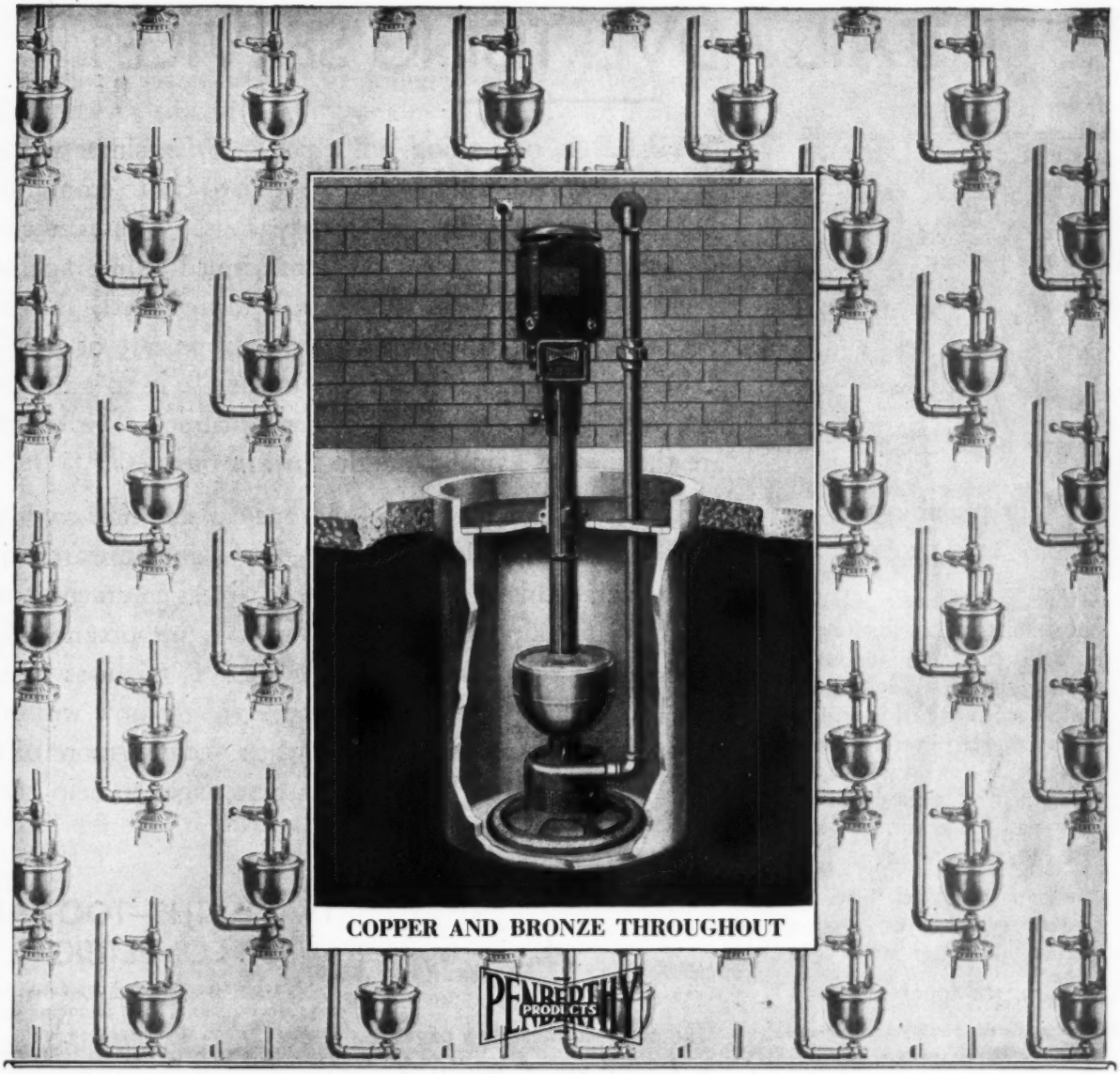
He must convince us that he knows how to do a job and how to estimate a job.

We suggest that he buy books on "Overhead Expense and Percentage Methods," and also on "Plumbing and Sewerage," before he tries to take an examination.

If he fails we show him why and how he failed, and we try to convince him that he did fail. We tell him he cannot buy a certificate at any price.

What the trade needs today is for every master plumber to refuse to hire a man who has not taken an examination and has no certificate, and what is more, we need examining boards that will be fair and honest with the men they examine.

In this work I have had the hearty co-operation and assistance of the journeyman member of this board, A. P. Wells, the Board of Registration and Education at Springfield, and our mayor, the Honorable L. J. Yager.



BEHIND THE PENBERTHY AUTOMATIC ELECTRIC SUMP PUMP

is an intimate understanding of drainage problems — a first hand appreciation of sump pump requirements—an excellence of engineering skill and workmanship—a practical knowledge of the possibilities and limitations of materials. Behind the Penberthy Automatic Electric Sump Pump lies experience in the development and manufacture of the Penberthy Automatic Hydraulic Cellar Drainer and other liquid-moving devices since 1886. Write for complete information.

PENBERTHY INJECTOR COMPANY

ESTABLISHED IN 1886 DETROIT CANADIAN PLANT WINDSOR, ONT.

RETAIL ADVERTISING SERVICE

Your plumbing is important

EVERYTHING else being equal, superior plumbing rents or sells property—at better prices. The plumbing in your building comes in for critical observation by buyer or renter. And, of course, in your own living quarters, modern plumbing makes for economy, comfort and convenience.

This is a good time to modernize—we'd be glad to discuss the matter with you.

(In this space Your Name, etc.)

For one column space

Dear Sir:

Your own experience in property-owning has undoubtedly made clear to you the fact that plumbing is more important today than ever before.

Real estate sales are not booming--but they are being made. Apartments are being rented. And, everything else being equal, plumbing not only assists the sale or the renting--but it has an influence on the price paid.

During the past year we have done a number of modernizing jobs for home owners--and each of those remodeling projects has paid the owner a nice dividend.

To this work of remodeling we bring a special training and experience to be put at your command. We feel sure that you will find a discussion of the possibilities interesting, in the light of the experience of other property owners who have profited by bringing older types of buildings up to date in the essentials.

If you will just 'phone, a member of the firm will call.

Very truly yours,
HARRY BROWN

A plumbing sales letter

THERE is one thing on which every business writer agrees: That this is not the time to try to economize on selling efforts. They give two reasons. First, it seems apparent that those firms that continued selling aggressively during 1930 held their own, and frequently showed a gain. Second, the more a firm drops out of public sight when buying is slow, the harder it is to gain the lost ground, and those who have continued their efforts are the first to gain by the up-turn in business.

1931 is to bring recovery—no one can tell how swiftly. But of that there is no doubt—the swing upward will come during this year—and some business commentators think it has already begun. But it is important that local selling efforts be kept up. There is business to be had—and the man who is selling strongly now will get a greater share of the business when there is more of it to be had. Use the material in these pages to help keep your volume of business up.

▲

The copy on these two pages is for the use of readers of DOMESTIC ENGINEERING —without charge. If you wish to use the illustrations, they are sold at $4.20 for twelve—three month's service.

If you are using any of this copy, send us samples. We like to keep in touch with what our readers are doing.

▼

TWO BATHS—TOO BAD FOR COMPETITION

"It's just too bad for competition," says Harry Brown, local plumbing contractor, "when there are two baths in a house that is to be sold or rented. And there is plenty of competition in real estate these days.

"As between two homes or apartments, one of which has more than one bath (and that always means that all the plumbing is better than average) there isn't much doubt as to which one the prospect will buy or rent—at a better price, too.

"I confidently expect that in the near future it will be impossible to rent or sell at a profit if there are not two baths for every living unit. We're a bathing nation—our water bills show that. We have become what advertising men call 'bathroom conscious,' and the owner of property must take notice of that fact.

"America, like Rome, will leave behind it a wonderful set of bathroom ruins for archeologists in coming centuries to ponder over."

Hand this publicity item to your newspaper

Shame the Old Heating Plants

There will be plenty of remodeling work in heating if contractors will set out to make it socially an error to own an old-fashioned heating plant. Make people realize the inconvenience, the dirt, the discomfort, of heating plants that have passed their prime—and substitute radiator heat.

A two-column newspaper ad

If your wife must run down into the basement five times a day to take care of the old-time heating plant

—we can say with confidence that it is wasting fuel, causing large cleaning and decorating bills, and causing no end of inconvenience. If you ever want to sell or rent, you'll discover it's a drawback. We know from experience—and we know how to modernize heating plants. Just 'phone.

(In this space Your Name, etc.)

Right now—check your heating plant

Is it really modern—convenient, clean, automatic? Or is it always calling for attention, spreading dust through the house, and anything but convenient? Is it thermostatically controlled, has it the necessary safety devices, is it properly installed and insulated so that it doesn't waste fuel?

Modern improvements in heating mean economy in heating. We'd be glad to inspect your plant and give you a report—without obligation.

(In this space Your Name, etc.)

A single column ad

WHO'S BOSS—YOU OR HEATING EQUIPMENT?

"There's a question I'd ask every man running for office, if I had my way," says Harry Brown, local heating contractor. "And if he had to admit that the heating plant runs his home—makes it necessary for him, or his wife, or some member of the family to run down into the basement half a dozen times a day, he wouldn't get my vote.

"Why? Because I'd know he wasn't up-to-date. I'd know that if he permitted inefficiency in his home, he'd permit it in his office—whether he was to be chief dog-catcher or mayor.

"We want good business men in office. And it's good business to modernize heating plants, because it's economical, convenient and efficient."

Give this publicity item to your local newspapers

Your Window

Window displays need change. If you have a permanent display of fixtures and equipment, make changes in lighting—use the free floor space for changed displays of accessories. Property owners who pass your window will never be particularly drawn to it if it remains the same in every detail for months at a time. Change—even small changes—is what draws attention to a window.

Dear Sir:

You, as a property owner, would undoubtedly be interested in the experiences we run across when taking care of heating equipment. Thousands of dollars every winter are wasted because of the failure to invest a few hundreds in the correction of defects.

Because a heating plant is a piece of mechanical equipment, it shows wear, and in time it becomes less efficient. Leaks of one kind and another develop. And advances in heating equipment all tend to produce economy in operation.

We are recommending to our customers that they have heating equipment checked so that existing defects may be remedied before they cause waste during this heating season--and such improvements be made as will assure efficient, convenient and comfortable operation of the plant.

We'd be very glad to talk the matter over with you, and to give you a report on your heating equipment. Just telephone.

Very truly yours,
HARRY BROWN

(A heating sales letter)

Are You Doing Government Work?

ARTICLE NO. 2

R. M. STARBUCK SELECTS A HOSPITAL TO SHOW YOU WHAT UNCLE SAM REQUIRES

The main building of the United States Veterans' hospital which gives a partial idea as to the size of the project. This building is in Connecticut

IN A previous article we have shown that the entire plant of one of the government hospitals for war veterans, comprises a group of eight or nine or more separate buildings.

Also, we have previously pointed out that the thirty-five or forty hospitals that the government has erected in various parts of the country, are in large measure of the same general design, both as to general and detailed layout and as to design and equipment. Therefore, a study of the features of the plumbing installation in any one of the hospitals will give a very good idea of all others.

The hospital on which these articles are based is the hospital now nearing completion at Newington, Conn., just outside of Hartford.

The medical work is carried on in Main Building No. 1 and in General Medical Building No. 2. In the preceding article we covered the chief points of interest relating to the plumbing installation in the main building, and in this article we shall take up the work in the general medical building. Before going onto this subject however, we think it will be of interest to note the number and character of fixtures with which the plumbing contract is concerned in the main building. This list is given below.

Taking up the plumbing installation in the general medical building No. 2, we show in Fig. 1 a plan of the pipe basement drainage piping. As explained in

32 water closets.
21 patients' water closets.
41 lavatories.
16 patients' lavatories.
4 patients' corner lavatories.
7 dental lavatories.
4 urinals.
7 patients' urinals.
3 showers.
21 slop sinks.
8 patients' showers.
14 fire hose racks.
5 wall hydrants.
11 drinking fountains.
3 wall-type drinking fountains.
4 electric water coolers.
2 double surgeon's wash-up sinks.

4 enameled iron sinks.
1 single surgeon's wash-up sink.
1 genito-urinary stand.
1 X-ray developing tank.
1 flushing rim combination floor drain.
4 continuous flow bath tubs.
1 control table.
1 needle shower.
1 pack sink.
1 arm bath.
1 leg bath.
2 42x120-in. hot water heating tanks.
1 30x72-in. tempered water heating tank.
1 incinerator.

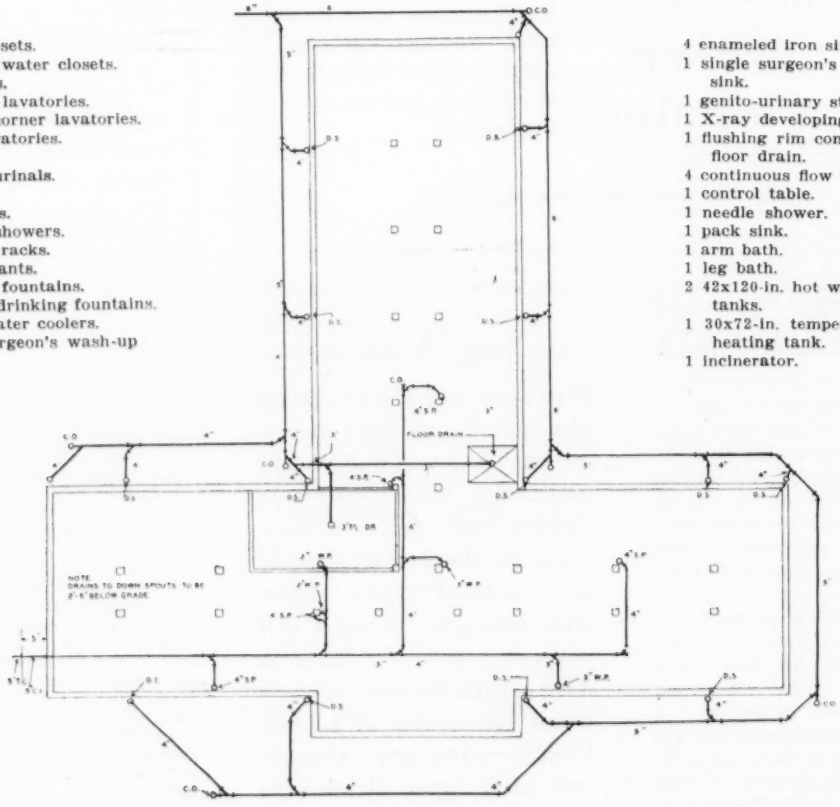
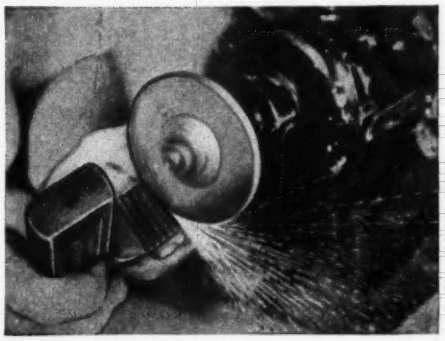


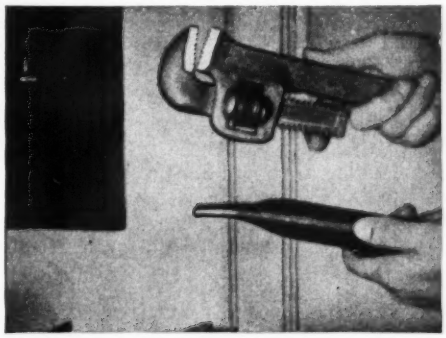
Fig. 1—Plan of the pipe-basement drainage piping. This basement is located below the main basement and is only 5 ft., 6 in. in height

The New Walco Pipe Wrench



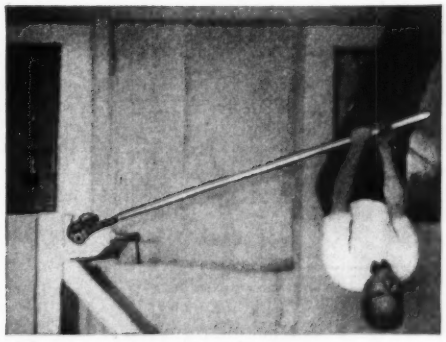
THESE illustrations are moving-picture shots of the Walco Pipe Wrench in action. They show tests of this new wrench's toughness and strength which have been made hundreds of times and never failed yet.

TEETH
can be quickly reground with an ordinary emery wheel



Drop-forged FRAME strong enough to batter this piece of steel pipe FLAT . . .

You can smash a steel pipe flat with the one-piece frame-and-bar of a Walco and not harm the wrench a particle. That's the kind of stuff there is in this simpler, stronger, longer-lasting pipe wrench . . . Walworth's WALCO.



Walco has GREATER STRENGTH to withstand hard use and PLENTY OF IT

This shot shows Henry Lambert, Walco demonstrator, upside down at the end of a six-foot leverage, giving the Walco a tough test that doesn't bother it a bit.

WALWORTH

Walworth Company, General Sales Offices: 60 East 42nd St., New York
Plants at Boston, Mass.; Kewanee, Ill.; Greensburg, Pa.; and Attalla, Ala.

connection with the main building in the preceding article, the pipe basement is located below the regular basement, and is but 5 ft. 6 in. in height.

Sanitary and Storm Drainage

In this building, as in the case of the main building, there are two separate drainage systems, one for the sanitary drainage, and the other for storm water and floor drainage. As shown in Fig. 1, the main house drain for the sanitary system is 5 in., and it serves nine stacks, five 4-in., three 3-in. and one 2-in. The main storm water line is 8-in., serving fifteen 4-in. downspouts and two 3-in. floor drains.

Fig. 2 shows the pipe basement plan of the hot and cold water supply system.

The building service pipe is 3-in.

Hot water is furnished by a 48-in. by 120-in. hot water storage tank heated by steam coils.

A second system of hot water which is tempered, is provided by a special tank 30 in. x 72 in.

Five Main Supply Pipe Lines

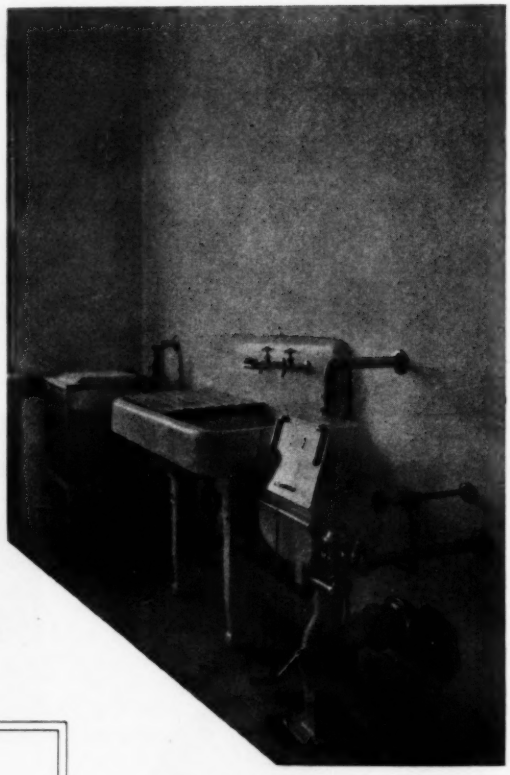
As in the case of the main building, there are 5 main lines of supply piping in the pipe basement piping plan, as shown in Fig. 2, including the cold water, hot water, hot water return circulation, tempered water and tempered water return circulation.

Fig. 3 shows a typical floor plan of the general medical building.

In the patient's shower room will be noted the location of a shower mixing valve. The connections for these valves are shown in Fig. 4.

Also in this shower room, shower heads are indicated. These shower heads cannot be readily tampered with or damaged.

On each floor of this building there is a utility room, for the use of doctors and nurses in their cleansing and sterilizing work. Fig. 5 shows the drainage and vent connections for the three fixtures comprising the utility room equipment, including combination sink and tub, utensil sterilizer and bed pan sterilizer.



Sterilizing apparatus in the utility room shown on the plan in Fig. 3

The two pieces of sterilizing apparatus have waste connections into the regular drainage system, but vents are carried separately through the roof and not into the regular vent system. It will be noted that each compartment of the combination fixture has its own waste and trap.

Fig. 6 gives a general idea of the fixtures and fittings in the diet kitchen, one of which is located on each floor of the general medical building. The plumbing contract covers all necessary waste, vent, supply and gas connections for the diet kitchens.

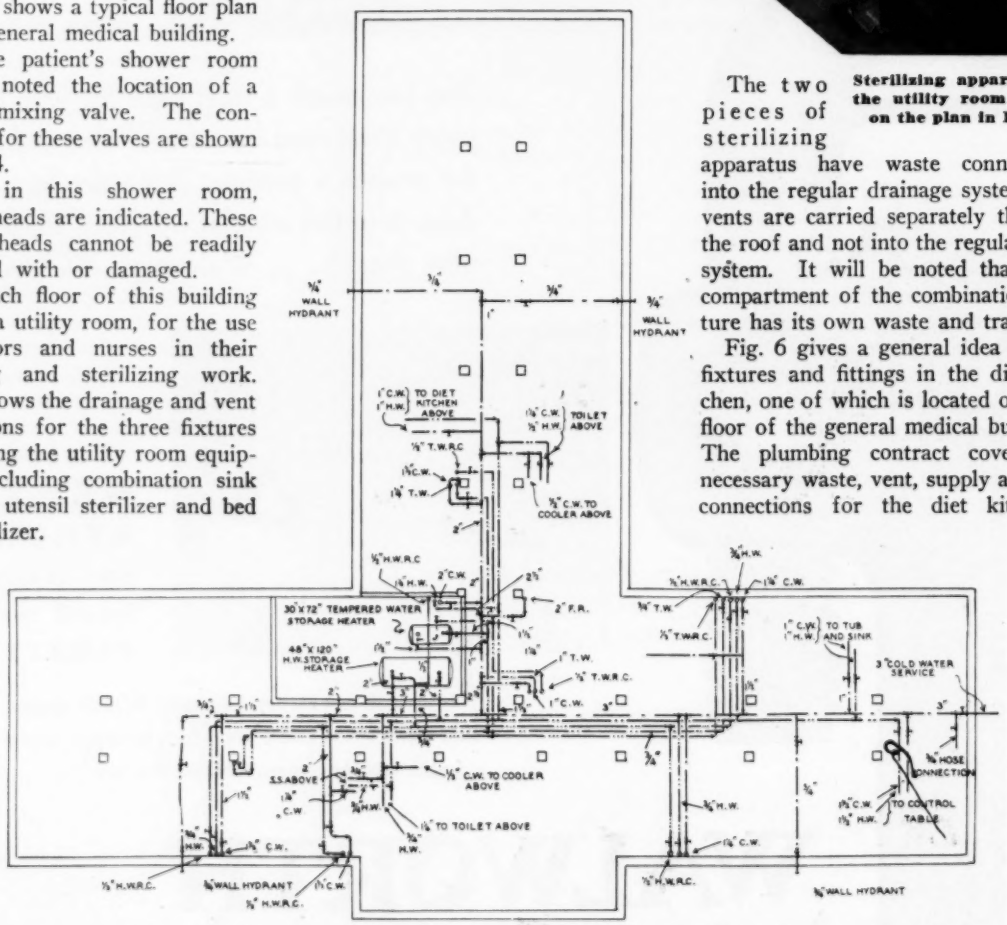


Fig. 2—This plan corresponds to the one shown in Fig. 1. Instead of showing the drainage piping, it shows the hot and cold water supply system

OUR CONTRIBUTION TO THE ART OF HEATING AND VENTILATION

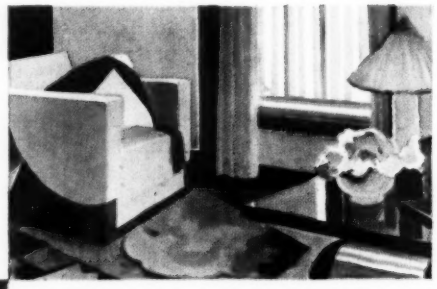
The Herman Nelson Wedge Core Radiator is an exclusive feature of all Herman Nelson Heating and Ventilating Products and accounts for their satisfactory performance. + + + +

THE HERMAN NELSON CORPORATION MOLINE ILLINOIS

BEHIND THAT GRILLE IN THE WALL

there's a radiator that says..."This building is modern"

Bungalow or skyscraper . . . kitchenette apartment or twelve-room suite . . . country home or city office . . . for modern buildings of every size and type, the Herman Nelson Invisible Radiator is being adopted. It is opening new opportunities for progressive heating contractors everywhere.



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During the past several years, there has been a widespread swing to the Herman Nelson Invisible Radiator among builders of fine homes. First, because this radiator, installed *within the wall,* is completely out of view and out of the way. Second, because it is so scientifically constructed that it never requires repair or attention.

Now, in response to requests from heating engineers, architects, and builders this same superior heating unit has been adapted to meet the installation requirements of office and apartment buildings, hotels, hospitals and similar structures. For these larger and taller buildings, a special removable panel is provided, permitting easy access to controlling valves, traps and all connections. A graduating damper affords instant control of heat output at grille.

The Herman Nelson Invisible Radiator is designed for steam, hot water, vapor or vacuum heating. It is much smaller and lighter than the ordinary radiator of equal capacity, and as easy to install. It has no joints of any kind to fail and leak—no parts that can rust or get out of order. It comes complete—ready for installation.

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MELBOURNE
TOKYO, OSAKA

*Makers of the *Herman Nelson Invisible Radiator*, for residences, apartments, hotels, offices and monumental structures—the *Univent*, for the ventilation of schools, offices, churches and all buildings having an acute ventilating problem—the *Herman Nelson hiJet Heater*, for economical distribution of heat in factories, mills, garages, warehouses, and smaller buildings.

In the general medical building there are three continuous flow bath tubs, and four such fixtures in the main building. In connection with each continuous flow bath tub there is a temperature control valve. This control apparatus is contained in a sheet metal cabinet set into the wall of the room in which the tub is installed.

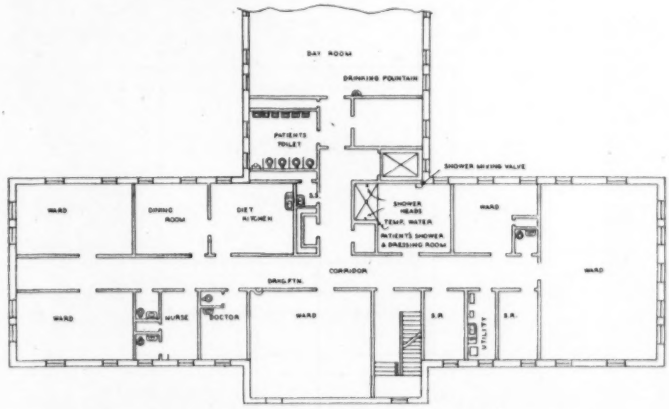


Fig. 3—Typical floor plan of the general medical building

Medical Building Fixtures

The schedule of plumbing fixtures in the general medical building is as follows:—

5 water closets.
15 patients' water closets.
5 lavatories.
18 patients' lavatories.
4 patients' urinals.
3 wall-type drinking fountains.
4 patients' showers.
3 slop sinks.
3 drinking fountains.
2 electric water coolers.
3 fire hose racks.
3 continuous flow bath tubs.
4 wall hydrants.
2 combination fixtures, sink and tub.
1 control table.
1 needle shower.
2 pack sinks.
1 48x120-in. hot water heating tank.
1 30x72-in. tempered water heating tank.

The pack sink shown in the above list is 26 in. by 26 in. by 12 in. deep, with 30 in. drainboard, supplied with hot and cold water, wringer and steam sterilizing coil with valves.

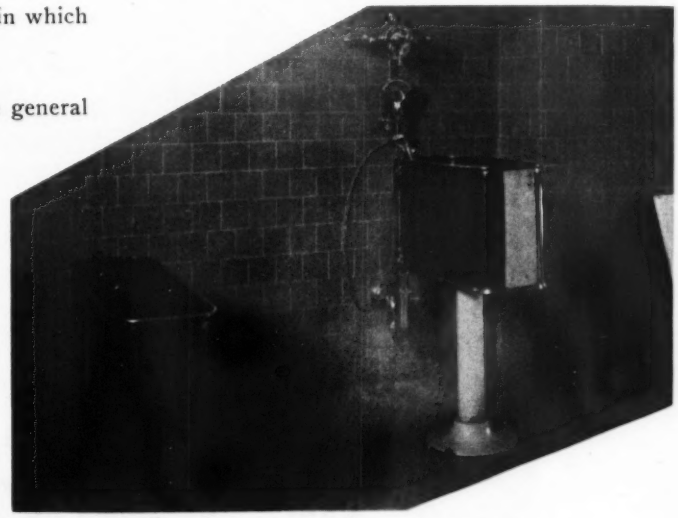
The specification covering the continuous flow tub is of interest, and is as follows:—

"Tubs to be porcelain enameled, 6 ft. 6 in. long, with antiscalding valve and thermometer, lock shield control valve, canvas hammock and restraining sheets.

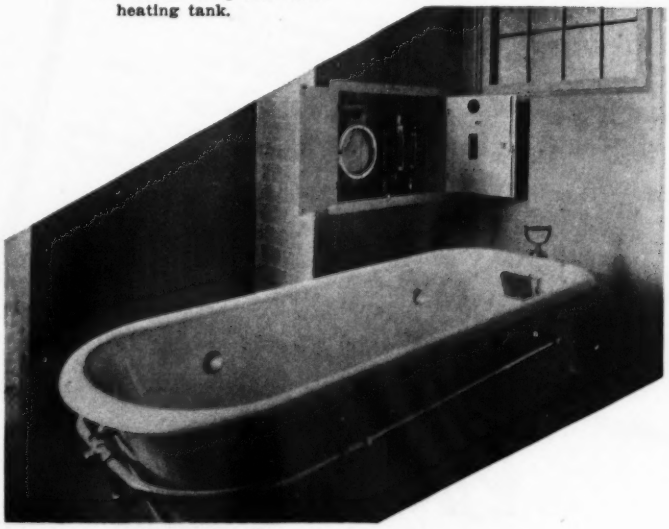
"Continuous flow tubs shall have 3-in. drainage type P-trap in furred ceiling below, with screw clean-out extending up through floor slab.

"Each continuous flow tub shall be equipped with a recording thermometer, with a range from 50 to 120 deg. Fahr. The capillary bulb of the instrument shall be installed in the water pipe between instrument and tub, in proper location to indicate the highest temperature of the water flowing into the tub.

"The instrument shall be equipped with a high and low electric alarm attachment, which will cause an alarm bell to be sounded when the temperature rises to a pre-determined high point or drops to a pre-determined low point, and also lights a pilot light, in order to warn the attendant that the mixing valve furnishing water to the tub is not functioning properly and needs adjustment. The instrument shall be so arranged that a single chart will furnish a continuous record of the actual water temperatures to which one patient is subjected. . . ."



The leg and arm bath fixtures. The leg bath supply and control, when installed, will be similar to that used on the arm bath



One of the continuous flow bath tubs which was installed. The wall cabinet for thermostatic temperature control valves is shown

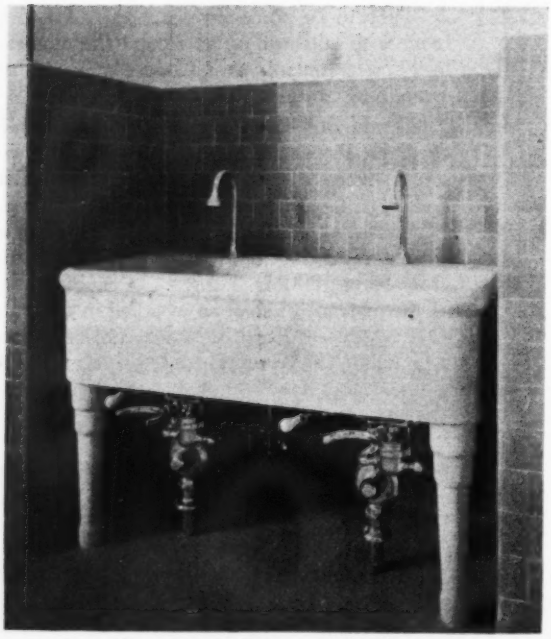
It will also be interesting to know something about the arm bath and the leg bath,

these fixtures being shown in the list of fixtures for the main building.

A part of these specifications is as follows:

"The arm bath shall be approximately 14 in. x 26 in. x 10 in. deep, and the leg bath approximately 10 in. x 36 in. x 20 in. deep, with semi-circular ends. It shall have a 2-in. connected waste and overflow. . . . The waste shall be controlled by a gate valve with wheel handle, placed between the tub and the vertical overflow pipe. The 2-in. trap shall be to the wall.

"Leg bath shall have 2-in. connected waste and overflow. . . . The waste shall be controlled by gate valve and provided with a bath trap, with 2-in. inlets and outlets. . . . The connection from the waste to the trap shall be through a 2-in. elbow. . . . Both



The surgeons' double wash-up sink

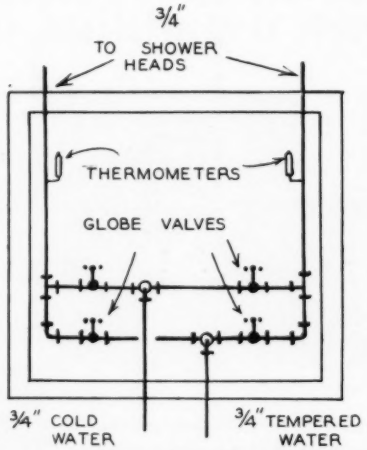


Fig. 4—Diagram of the connections in the patients' shower room

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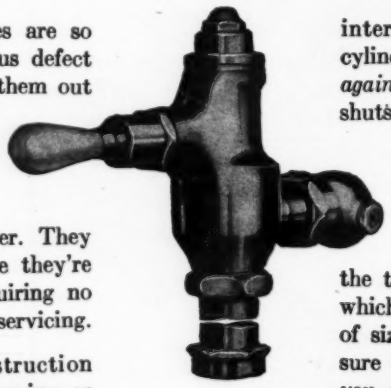
FLUSH VALVES THAT ARE IN TO STAY

—and that stay as they are put in!

This means REAL satisfaction, both to plumber and user.



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For you, they not only install better and work better, but they pay better. They "go in" quickly, and once they're in, they're in to stay, requiring no costly extra time in after-servicing.

Their plunger type construction prevents sputtering, hammering or clogging. Through a by-pass down the center of the valve there runs a phosphor bronze rod which is suspended from the valve cap. Each time the valve is operated this rod acts as a cleaner, forcing out scale, dirt or foreign matter which may come in through the intake with the water. Long bearing surfaces on the plunger cause it to ease gently, yet steadily and without interruption of motion, down the cylinder walls to its seat. Working *against* the water pressure, the valve shuts off smoothly and prevents water hammer. Regulation of flush and flow can be governed from the *outside* of the valve —a great advantage which permits final adjustment at the time of installation—adjustment which is frequently necessary because of sizes of water supply pipes, pressure and length of flush. *After this, you can forget about the valves, for they stay—and work—just as they were put in!*

Send for Scovill catalog which tells more of these and other Scovill profit-getters. Learn now how these profits can be yours!

—and KNIT-WICK (plumbers' lamp wick knitted into gasket form) will save you time and trouble on many a joint. Waterproofed, preserved, graphited. The best wicking you can buy. Be sure to remember KNIT-WICK.

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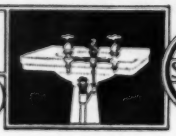
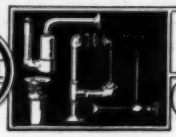
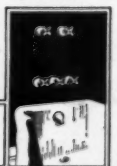
SCOVILL MANUFACTURING CO.
Plumbers' Brass Goods Division
Waterville Conn.

SCOVILL

Flush Valves ~ Shower and Bath Fixtures ~
Tubular and Miscellaneous Plumbers' Brass Goods
A COMPLETE LINE







of these shall be equipped with a thermostatic control valve, with a capacity of at least 8 gallons of water per minute at 40 lb. pressure, with lock escutcheon, check valves, loose key valves, thermometer and strainer."

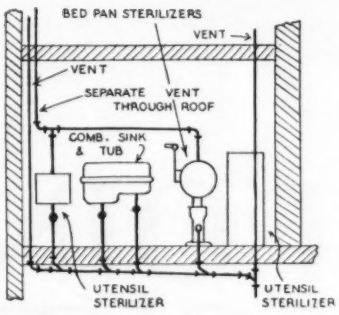


Fig. 5—Drainage and vent connections for fixtures comprising the utility room equipment

Installation of Fixtures

Up to this point little has been said concerning the method of installing fixture connections. We want now to go somewhat into this subject.

These United States veterans' hospitals are not vented installations, in the sense that the accepted modern plumbing system calls for the venting of each fixture.

When we say that these plumbing systems are unvented, we do not mean just that, for the floor outlet fixtures, such as water closets, slop sinks and urinals when in groups, are provided with circuit or loop vents. The elevated fixtures such as lavatories, sinks, drinking fountains, etc., do not have their traps vented, but are served by unvented non-siphon traps.

These non-siphon traps are of extremely heavy construction, as also all pipes, flanges, and other trimmings used in connection with them. This heavy construction is necessary in order that the exposed plumbing may withstand all possible rough usage.

Quality of materials used on this government plumbing installation is beyond criticism, and we cannot refrain from wishing that equally high praise could be given to the venting of the elevated fixtures.

Fig. 7 will show the waste and vent connections for such a group of fixtures as shown by the line of six lavatories in the patients' toilet room, Fig. 3. As will be seen, only two traps are used for the entire group, three fixtures being served by a single unvented trap. As already pointed out, the trap is of the so-called non-siphonable type. The other group of plumbing fixtures in this same toilet room, the four water closets and urinal, all being floor outlet fixtures, are served by a circuit vented line, as shown in Fig. 8. If there had been an elevated fixture on this line, such fixture would not have been vented, but would have been served by an unvented non-siphon trap, as in Fig. 9.

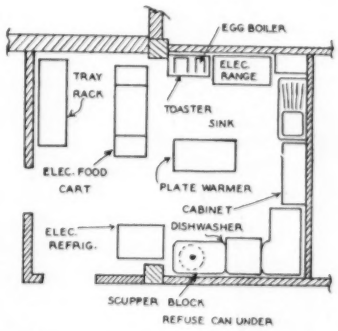
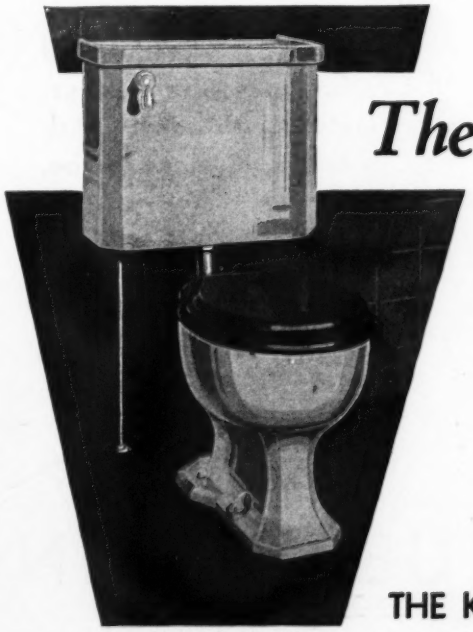


Fig. 6—Fixtures and fittings in the diet kitchen, one on each floor

The connection of this lavatory, unvented, as in Fig. 9, revives a controversy that has long been waged, concerning

(Continued on Page 155)



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TWO 45° Seats in M.I.F. Copper Tube Fittings hold the tubing tight against leaks---shocks and strains.

Because the angles of these seats are 45° no unnecessary strain is placed on the tubing. Also because of this angle, it is not necessary to cut the tubing off absolutely square, yet it will hold tight.

If you have not already tried M. I. F. Copper Tube Fittings, investigate them today! Ask your jobber to show one to you.

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MALLEABLE IRON FITTINGS M|F **COMPANY, BRANFORD, CONN.**

SUPPLY NEWS

AMONG MANUFACTURERS, WHOLESALERS AND SALESMEN

New Supply Firm Organized in Philadelphia

The Burloe Supply Company, 6025 Germantown avenue, Philadelphia, Pa., is the name of a new plumbing and heating supply company. Paul O. Loesch is president of the new company and F. W. Burk is treasurer.

◆

Monarch Plumbing and Heating Supply Co. Formed in Milwaukee

The Monarch Plumbing and Heating Supply Co., Milwaukee, Wis., is the name of the firm resulting from the consolidation on December 20, 1930, of the L. K. Bruckner Company, The Monarch Brass Company and the Jep Sales Company. The company is located at 407 Juneau avenue (formerly Chestnut street). The officers of the new organization are Leo K. Bruckner, president; J. Edward Pulte, vice president; Edward F. Heuel, secretary and treasurer. Mr. Heuel will serve as general manager, and Mr. Bruckner and Mr. Pulte will be in charge of sales and service.

◆

Remodels Display Room

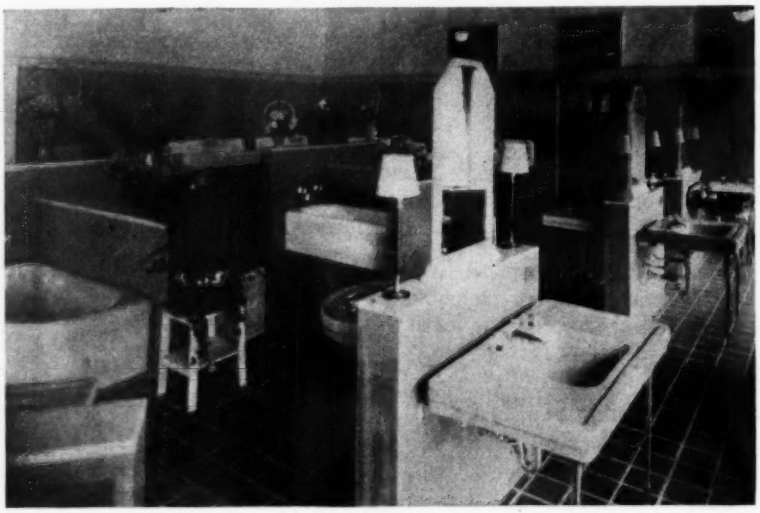
Interstate Plumbing Supply Co., Inc., 733 Broadway, Albany, N. Y., has remodeled its showroom to display more effectively its plumbing fixtures accessories and heating materials. At the opening 1,500 guests were present to view the new display, which was a total rearrangement of one completed but a short time ago. A number of individual bathrooms presenting as many color scheme combinations feature the permanent exhibit. A modern pipe fabricating plant is also a part of the facilities of the firm. A. F. Ruch is president of the company; M. J. O'Brien, vice president; E. I. Hodgkins, treasurer, and J. L. Hodgkins is secretary.

Views of the attractive showroom of the Interstate Plumbing Supply Co., Inc., Albany, N. Y. The building was recently remodeled.

Noland Co. Opens New Showroom in Macon, Ga.

Noland Company, Inc., Newport News, Va., recently opened the new showroom at its branch in Macon, Ga., located at 536-50 Broadway, in that city. The Macon establishment completes the sixteenth branch house of the Noland Company. The formal opening of the showroom was attended by more than 250 persons, including plumbing and heating contractors, architects, the general public and manufacturers' representatives and wholesalers. Many friends of the company had sent flowers as an indication of esteem. Music served to enliven the day's program and refreshments were served the visitors. The new showroom is attractively designed and the color and lighting effects tend to display the various fixtures to the best advantage. Boilers, radiators, laundry trays, lavatories, tubs, showers, electric dishwashers, electric clothes washers, and various other plumbing and heating items are displayed.

Representatives of the Noland Company present were C. P. Ward, Macon branch manager; E. E. Sykes, assistant manager of the branch; F. J. Osborne, store manager; L. B. Fowler, manager of the Atlanta branch; D. F. Stevenson and C. J. McCubbin, salesmen. E. W. Becan, assistant secretary of the Noland Company, came from Newport News in the company's airplane for the affair, and during the day many of the guests were taken for short flights over the city and points of special interest in the vicinity.



The Macon, Ga., branch showroom of Noland Co., Inc.

Wholesalers' Association Develops Merchandising Program

The sales promotion committee of the National Pipe & Supplies Association held an important meeting in Columbus, Ohio, on December 19, at the Deshler hotel.

In attendance at this meeting were M. J. Gibbons, Jr., chairman of the merchandising committee; Dr. Theodore N. Beckman, merchandising counsel; W. W. Morgan, president of the National Association of Plumbing & Heating Salesmen; and R. Kennedy Hanson, secretary of National Pipe & Supplies Association.

This meeting was called to diagnose some of the problems of the wholesaler, as well as of the retailer.

It was determined, after considerable discussion, that the wholesaler afforded possibilities for important selling, as he had plenty of lines to merchandise at reasonable prices. It was further determined that the wholesaler has the training and the funds to merchandise on a better scale than he is now doing. It was further pointed out that the wholesaler's salesmen's turnover was very low and it was thought that possibly this might be a bad feature, as many corporations, it has been found, have large turnovers, and only the best remain.

With the survey conducted by the Plumbing & Heating Industries Bureau of a group of prominent master plumbers as a background, and a similar survey of a group of wholesalers' salesmen and their method of approach to the master plumbers, and their selling ability, the committee was armed with material to inaugurate their sales education or sales development program.

It was felt that sales education or sales development was the proper starting place in this program of merchandising and the committee designated four steps to be carried out in the coming year, as follows:

1. A series of meetings will be held with the wholesalers, salesmen and their employes, where talks could be prepared showing the need for careful training; these talks are to be based partially upon the information which the Plumbing and Heating Industries Bureau developed and partly through a questionnaire which is being sent out by the National Association of Plumbing and Heating Salesmen.

2. It has been recommended that the sales promotion committee prepare a practical sales manual for the industry. This course will be prepared in co-operation with Prof. H. H. Maynard and Dr. Beckman. Dr. Maynard is one of the foremost authors of sales manuals in the country and has done considerable work for other industries in preparing brief and concise sales information.

RALPH STARR BUTLER

Vice President in charge of Advertising

General Foods Corporation

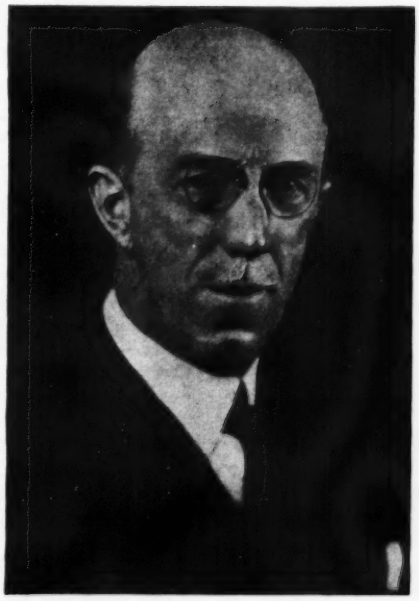
"I cannot believe that the present enormous budgets would have been voted by responsible business men without such a measuring stick as the A. B. C. provides. Its foundation marks the turning point in advertising."

Ralph Starr Butler

PHIL L. THOMSON

Director of Public Relations

Western Electric Company



"Business would never have spent millions to buy circulation by the pile. Accustomed to purchase copper, lumber or lead by an accepted unit of measure, we asked the same type of yardstick for space. The A. B. C. gave it to us."

P. L. Thomson.

Advertisers, men who direct the budgets of great companies . . .

Men who spend money for space in order to promote more profitable business . . .

Looking back over the active decades, they search out the turning point in American Advertising, the period when the confidence of business was won.

Independently, they agree on time and place.

It was the discovery of the Yardstick . . . The finding of a unit of measure for the value of advertising space. A unit as positive, as reliable, as the measure for coal or wheat.

Sixteen years ago a group of advertisers met with publishers and agencies in Chicago. To bring order out of chaos in circulation claims, they founded, on May 20, 1914, the Audit Bureau of Circulations.

In 1914, publication advertising totalled about $250,000,000. In 1927, year of the latest government report, it had reached over a billion dollars.

That this growth could not have come without the A. B. C. is the judgment of advertisers themselves.

Founded at the instance of advertisers, having advertisers in the majority on its Board of Directors, the A. B. C. exists to safeguard the interests of advertisers.

For them, it forms the bulwark against the chaos that once was advertising. It has enabled them to buy advertising with confidence.

In recognition of this service, an increasing number of leading advertisers hold membership today in the Audit Bureau of Circulations.

An Advertisement by

AUDIT BUREAU OF CIRCULATIONS

Executive Offices . . . Chicago

3. Subsequent meetings will be held at regular intervals and the programs at these meetings will be based largely on the sales manual, followed by sales demonstrations. The demonstrations will be followed by a round-table exchange of experiences in the form of discussion which will include methods of selling and ways of securing prospects, etc.

4. It is further recommended that a salesmen's contest in which prizes will be awarded be inaugurated for the purpose of securing from wholesalers' salesmen papers on: "Why Plumbers and Steamfitters Should Buy from the Wholesaler." The purpose of this contest naturally would be to further educate the wholesalers' salesmen in the economies of wholesaling.

The above suggestions have been approved by the committee on sales promotion, and some of these details will be set up immediately. Tentative plans call for a meeting to be held in Columbus, at the Deshler hotel, on February 20th or 21st, 1931.

It is further expected that group meetings, either by states or territories, will be held, at which time master plumbers will be invited to convene with the wholesalers and the wholesalers' salesmen, to discuss closer relationships in business and better co-operation on the part of the wholesaling and retailing end of our industry.

Further stress will be laid on the presenting of intelligent talks before Rotary, Kiwanis and Lions clubs, Exchange clubs, Professional and Business Women's clubs, etc. These talks will bring out the importance of health, style changes which are becoming prevalent in our industry, and will urge home-owners to know their plumber and consult him frequently on their equipment.

◆

National Association of Fan Manufacturers Elects Officers

J. M. Frank, president of the Ilg Electric Ventilating Co., of Chicago, was elected president of the National Association of Fan Manufacturers, which comprises more than 80 per cent of the ventilating fan and blower industry, at the annual meeting in the Hotel Roosevelt at New York, recently. Other officers were elected for 1931 as follows: R. E. Shaw, general sales manager of the B. F. Sturtevant Co., Boston, vice-president, and E. B. Cresap, of Chicago, secretary. The latter is the professional secretary of the association.

That the business outlook for 1931 is good, was indicated by a poll of those attending the meeting. All members expressed confidence in the growing importance of the mechanical air industry with particular reference to its increased uses for ventilating and cooling all types of buildings.

◆

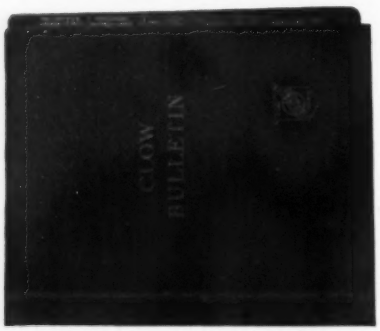
Modernizing Bureau Plans Active Year

The Home Modernizing Bureau of the National Building Industries, Inc., with headquarters in Chicago, recently announced its program of activities for 1931. Briefly, the bureau will work with the following objectives in mind:

1. To establish a new conception in Home Building

More than 5000 plumbers hire this "never-wrong"

ESTIMATOR, INVENTORY TAKER, BUYER, INVOICE CHECKER



and pay only 83c per month

The big Clow Bulletin holds 450 pages of descriptions, illustrations, and prices on every modern plumbing appliance. Big index tabs show your thumb the sections—pronto.

Fixtures, pipe, fittings, etc., with their descriptions and prices are on the same page—for fast, sure reference.

Prompt supplementary sheets keep you up to the latest minute. Figure the help this book gives you by eliminating costly mistakes and speeding up Estimating — Inventory — Buying — Invoice Checking. 5000 master plumbers have used it for 15 years. Tear off the coupon right now—as hundreds of other wide-awake plumbers are doing.

Clow Bulletin
SUBSCRIPTION

CLOW BULLETIN

Mail to
JAMES B. CLOW & SONS
201-299 N. Talman Ave., Chicago, Ill.

We hereby subscribe for the Clow Bulletin at the rate of 83 cents per month ($10.00 per year). Upon receipt of the Binder and Bulletin pages we agree to pay, at the monthly rate, the proper amount to carry our subscription until September 1st, and we further agree to pay thereafter the subscription price of this Service ($10.00) annually in advance.

And we further agree that the title of ownership to the Binder and Bulletin pages shall rest with James B. Clow & Sons and that upon our failure to renew our subscription at the end of any fiscal year (September 1st), or upon repayment to us by said James B. Clow & Sons at any time of the unearned portion of our subscription, we will surrender to said James B. Clow & Sons, or its authorized agent, the aforesaid Binder and Bulletin pages and this subscription shall be immediately terminated.

Nothing in this agreement shall obligate James B. Clow & Sons to publish or maintain the Clow Bulletin, the subject of this agreement, except that if the publication of the Clow Bulletin is discontinued after the receipt of our subscription, we shall be repaid the amount of the unearned portion of said subscription.

Name..... *Address*.....

Date..... 19..... *City*..... *State*.....

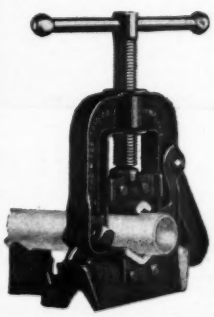
Here They Are

Housing unconditionally guaranteed — easy turning nut in open housing—replaceable heel jaw—pipe scale on jaw — I-beam handle with comfortable grip—hang-up hole.

RIDGID End Wrench for coils and pipes in tight places.

RIDGID Cutter with renewable thin blue super-steel blade (safety - razor style). More clean quick practically burrless cuts.

RIDGID Super-Wrench for 4-in. and 6-in. pipe —compound leverage 10 times regular 36-in. and 48-in. wrenches.



RIDGID Bench Vise with no-mar jaws for nickel pipe. Complete line of styles and sizes.

New RIDGID Threader threads 4 sizes of pipe with one set of chasers — cast iron, steel or brass pipe — remarkable new centering device — automatic reversing of direction — other unusual features.

NO WONDER THESE RIDGID PIPE TOOLS ARE SO WELL LIKED

They're different!

They do the old jobs of turning, cutting, holding and threading pipe with new ease and pleasure to the men on the handles.

Stronger in the places where strength is needed, they practically end the troubles and expense of keeping tools in repair. And they last longer.

Check over the features mentioned under their portraits to left.

Many of these features are fundamental improvements in pipe tools. The rest are new well-devised, handy details that make the tools easier and more comfortable to use.

No wonder RIDGID Pipe Tools are daily growing in popularity among plumbers and steamfitters!

If you're not already a RIDGID user, make it a point to take a look at the line the next time you're at your jobber's.

THE RIDGE TOOL CO., Dept. DE, Elyria, Ohio

RIDGID PIPE TOOLS

IN CINCINNATI'S FAMOUS CAREW TOWER

Within the last few months Toncan Iron Pipe has been installed in the heating systems of a 732 room hotel, two department stores, a large parking garage, a number of specialty shops and a 46-story office building. All these are grouped under one roof to form Cincinnati's outstanding building operation of nineteen-thirty—the famous Carew Tower.

Paramount among the factors leading to the final selection of this unusual alloy of iron, copper and molybdenum to withstand the rigorous service encountered in the steam return lines throughout this building, was its remarkable resistance to corrosion.

In new construction, in replacements and particularly in service more than ordinarily severe, Toncan Iron Pipe is protection for the entire piping installation. It costs less during its longer trouble-free life. And it works as easily as any ferrous pipe. It cuts, bends and threads without difficulty and without in any way changing its corrosion resistance, because long life is processed into every tiny grain of metal throughout the pipe wall—not confined to the "skin" of the metal.

REG U.S. PAT. OFF.
TONCAN
COPPER MO-LYB DEN-UM
IRON PIPE

REPUBLIC STEEL CORPORATION

sections in newspapers throughout the United States.

2. To enlist the co-operation of trade journals to bring to the industry information and methods as to the market.

3. To mobilize the support of allied agencies and civic groups for business stimulation.

4. To establish a fact-finding department that will gather much valuable information from independent existing agencies.

◆

Much Interest Displayed in Oil Burner Show

Great interest in the eighth annual oil burner show to be held at Philadelphia next April is being displayed by manufacturers of oil burning equipment and accessories, according to the American Oil Burner Association. Shortly after December 1 only 19 booths out of 123 remained unsold and many of the remaining booths had been placed on option. The 104 spaces already sold have been taken by 63 exhibitors.

Harry F. Tapp, executive secretary of the association which is staging the show in connection with the annual convention at the same time, said plans were under consideration for adding more booths to the total space available to accommodate those who may be unable to secure space otherwise.

The number of booths contracted for on December 1 was far ahead of the total on December 1st in any past year. The innovation last year in opening the show to the general public as well as dealers and manufacturers is believed to have quickened interest in the event.

◆

Death of George H. Gorton

George H. Gorton, vice president and general manager of the W. B. Young Supply Co., Kansas City, Mo., whose sudden death from heart disease on December 19 was mentioned in our last issue, was prominent in the plumbing and heating industry not only in Kansas City but throughout the Middle West as well. Mr. Gorton was in his 62nd year.

He suffered a heart attack in his office at about 1:30 o'clock on the afternoon of December 19. Apparently he had recovered and later in the afternoon started home in an automobile, accompanied by a doctor and two friends. He suffered another attack during the drive and died on the way to Research hospital. Since the death last March of a daughter, Mr. Gorton had been in ill health.

Mr. Gorton was a past president of the Central Supply Association and had been connected with the W. B. Young Supply Co. for many years. He started in business in Kansas City more than 40 years ago. Ten years later he became general manager of the Young company and then a vice president. He was a director in the New England National Bank and with the merger of that institution with the Fidelity National Bank and Trust Co. retained his directorship. He was a member of the executive committee of the Fidelity company also.

Mr. Gorton was a member of the Kansas City Club and the Mission Hills Country Club, and active in chamber of commerce work. He is survived by his widow, Mrs. Claude Gorton, and a daughter, Miss Sara Jane Gorton.

CO-OPERATION

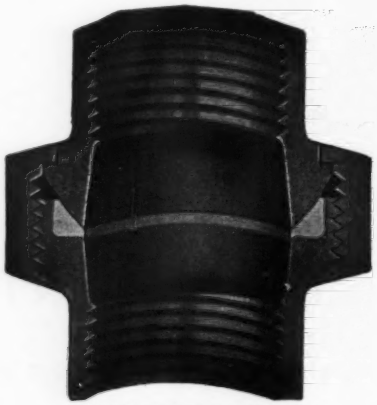
Most important of the many ways in which Crane Co. co-operates with plumbing and heating contractors is to supply high-quality, dependable materials. These enable you to serve your customers better and build on a lasting foundation. They make your bid no higher; and they make sales easier.

CRANE

CRANE CO., GENERAL OFFICES: 836 S. MICHIGAN AVE., CHICAGO
NEW YORK OFFICES: 23 W. 44TH STREET
Branches and Sales Offices in One Hundred and Ninety-six Cities

VALVES FITTINGS

IMICO UNIONS



NOTE THE BRASS DISC

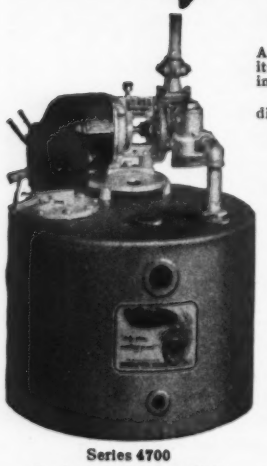
Made of refined Malleable Iron with Brass Seat inserted in place by powerful pressure so that it cannot become detached.

Approved by Underwriters' Laboratories.

ILLINOIS MALLEABLE IRON CO.
Chicago, Ill.

Manufacturers Full Line Iron Pipe Fittings

BURKS SUPER-TURBINE PUMPS



A FATAL FAULT

Any pump, not having the ability to clear itself of air and vapor, is doomed to failure in hot water service.

Burks pumps meet and master the difficulties encountered in handling hot water. *Burks* pumps will pump air or vapor alone to 100 lbs. pressure per square inch!

Remarkable accomplishment? Certainly it is, but it must be done to prevent steam-binding. You can depend on the *Burks* Super-Turbine pump to *clear* itself. It is, therefore, *non-steam-binding.*

Simplicity in design, ruggedness in construction, and containing generous quantities of cast bronze and stainless steel in all essential working parts, are other qualities that commend the *Burks* pump for condensation return work.

Install a *Burks* on that next job, and let this fully guaranteed pump convince you, beyond all question, that it stands alone as a superior pump.

Series 4700
Condensation Return Unit

Write for Bulletin No. 91 for complete details. Free for the asking. Get yours today.

DECATUR PUMP COMPANY DECATUR, ILLINOIS

Eaton Victor in Fight on Steel Merger

An injunction preventing the proposed $1,000,000,000 merger of the Youngstown Sheet and Tube Co. with the Bethlehem Steel Corp. was granted recently by Judge David G. Jenkins, in common pleas court, at Youngstown. The decision was a victory for Cyrus S. Eaton, Cleveland financier and organizer of the $350,000,000 Republic Steel Corp., who led the opposition to the merger, which was supported by James A. Campbell, veteran chairman of Youngstown; Frank Purnell, president of Youngstown; Charles M. Schwab, chairman of Bethlehem; Eugene G. Grace, president of Bethlehem, and Henry G. Dalton, a director in both companies.

Judge Jenkins held that the merger negotiations and the meeting of the directors of Youngstown to approve the consolidation were illegal and, for that reason, he said it was not necessary to go into the numerous other controverted points in the suit.

◆

Calls Meeting of P. and H. Salesmen

William W. Morgan of Philadelphia, president of the National Association of Plumbing and Heating Salesmen, has announced that the organization will meet in Philadelphia, Pa., at the Sylvania hotel, on January 24, 1931. The meeting will convene at 10:00 a.m.

◆

Committee of Ten Holds Meeting

The December meeting of the Committee of Ten—Coal and Heating Industries was held at the Deshler-Wallick Hotel in Columbus, Ohio, December 2nd, in conjunction with the semi-annual meeting of the National Warm Air Heating Association.

It was decided that the many demands for assistance from the Committee of Ten, Coal and Heating Industries would necessitate expanding activities; and steps are to be taken within the next thirty days to provide additional means of contact between the Committee and local organizations.

The welcome of additional organizations to the Committee of Ten movement was thoroughly discussed; and two additional national groups are to be invited to participate in the Committee of Ten movement at this time.

An invitation has been extended to the Committee to present the original Committee of Ten, Coal and Heating Industries story before the Chicago Retail Coal Merchants' Association on January 13th; and this message will be presented by Executive Secretary C. B. Huntress of the National Coal Association and E. B. Langenberg, representative of the National Warm Air Heating Association on the Committee of Ten.

Following the closed business session, a luncheon was held, to which others interested in the movement were invited. President Triggs of the National Warm Air Heating Association welcomed the Committee of Ten to Columbus in conjunction with the semi-annual meeting of the National Warm Air Heating Association; Milton E. Robinson, president of the National Retail Coal Merchants' Association, was called on and responded in behalf of the retail coal merchants of the country.

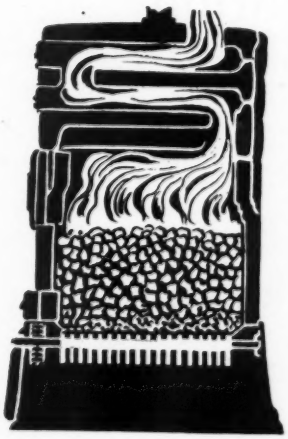
Dr. A. P. Kratz of the University of Illinois told of the work they were doing in conjunction with the warm air industry as applied to the proper utilization of coal. Stanley Mickel of Purdue University also addressed the meeting.

Burnham Boilers

BECAUSE

There's Ample Parking Space

This sounds silly. Only it isn't. For instance: If it were possible to make the heat laden gases, both stand still in the boiler, and at the same time move along towards the chimney, then almost any half way good boiler, would be a mighty good one.



As it can't be done, the next best thing is to provide all the parking place possible and still not hold up the gas and smoke traffic. That's where the Burnham's extra long fire travel comes in. Their big heat parking space is the big why of the short coal bills.

And now let us remind you, there's a Burnham round or square boiler for every place and purpose.

1—Round Sectional	5—High Pressure*
2—Square Sectional	6—Junior*
3—Big Twin Sectional	7—Laundry Stove*
4—Smokeless	*for hot water supply

Send for our special prices on Flue Cleaning Brushes

Burnham Boiler Corporation

IRVINGTON, N. Y.

Representatives in all principal cities of the United States and Canada

TEN REASONS

for Buying Plumbing and Heating Supplies from the Distributor:

1. **Plans for Customers**
2. **Buys for His Trade**
3. **Insures Fair Prices for Quality Merchandise**
4. **Furnishes Information**
5. **Grants Credit Intelligently**
6. **Provides Complete Showroom**
   (An Active Aid to More Sales)
7. **Renders Sales and Business Service**
8. **Adjusts Complaints Quickly**
9. **Makes His Customers More Efficient**
10. **Increases Plumber's Turnover**

"In the distribution of plumbing and heating supplies there are functions which must be performed by someone" says **Theodore N. Beckman*** and the question he asks is:

Who Can Wholesale Most Economically?

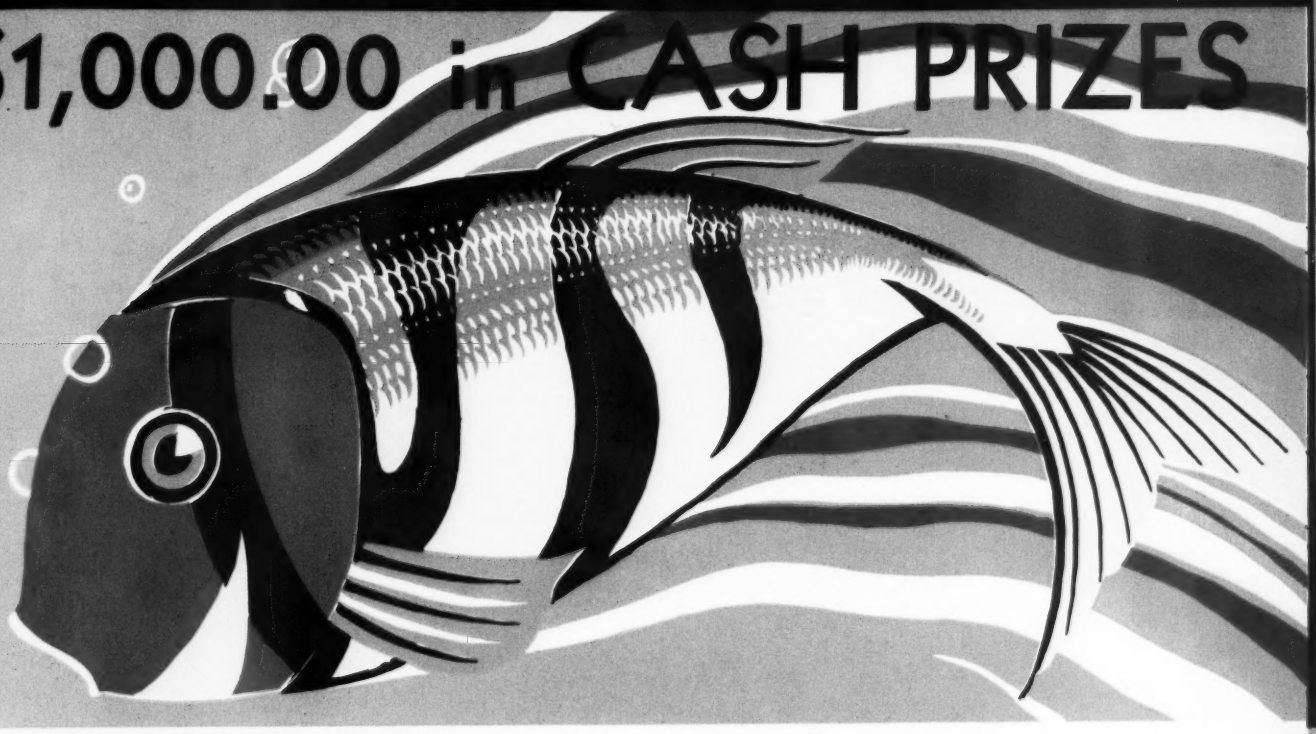
AN effective distribution system is essential to our business structure. Without it, the mass production of the modern factory would be nonexistent. When goods are improperly distributed the consumer pays too much for what he gets and the manufacturer finds his market limited and curtailed.

In the distribution of plumbing and heating supplies there are wholesale functions which must be performed by someone. None of these functions can be eliminated. All of them are necessary and the proper margin must be provided to care for them in an absolutely satisfactory manner.

It does not mean that the distributor's work cannot be done by someone else. In fact, the manufacturer may assume the wholesale functions; he may go into the *middleman* business himself. He may even go direct to the ultimate consumer, as he has done in a number of cases. Again the plumber may undertake all or part

* Merchandising Counsellor, The National Pipe & Supplies Association.

$1,000.00 in CASH PRIZES



Offered by THE DOLE VALVE COMPANY, Manufacturer of

DOLE

AIR and VACUUM VALVES

THIS gorgeous fish lined up with Dole Valves is the fifth in our series of six coloring competitions.

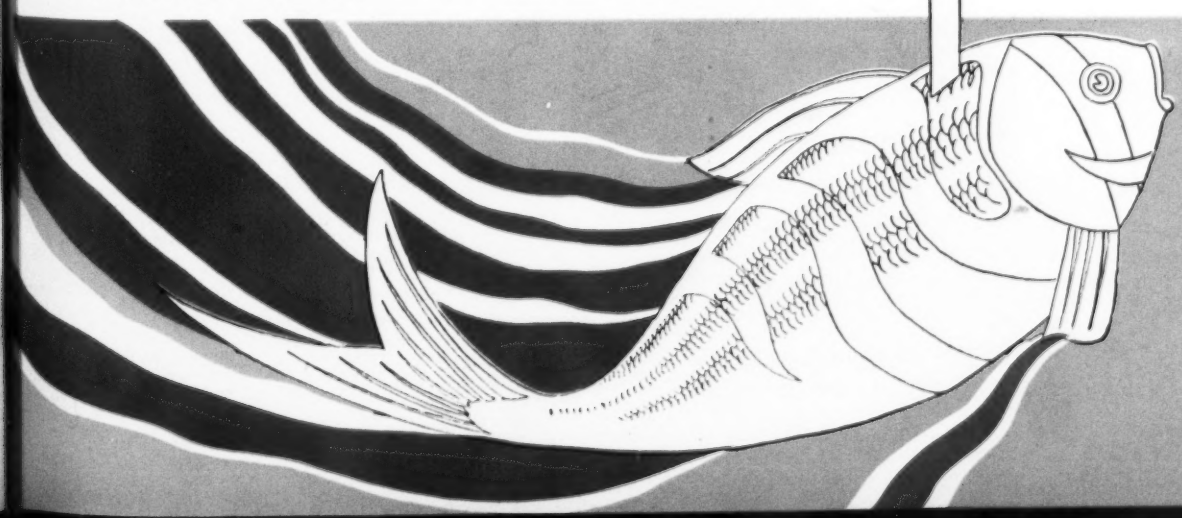
We are giving away 325 cash prizes.

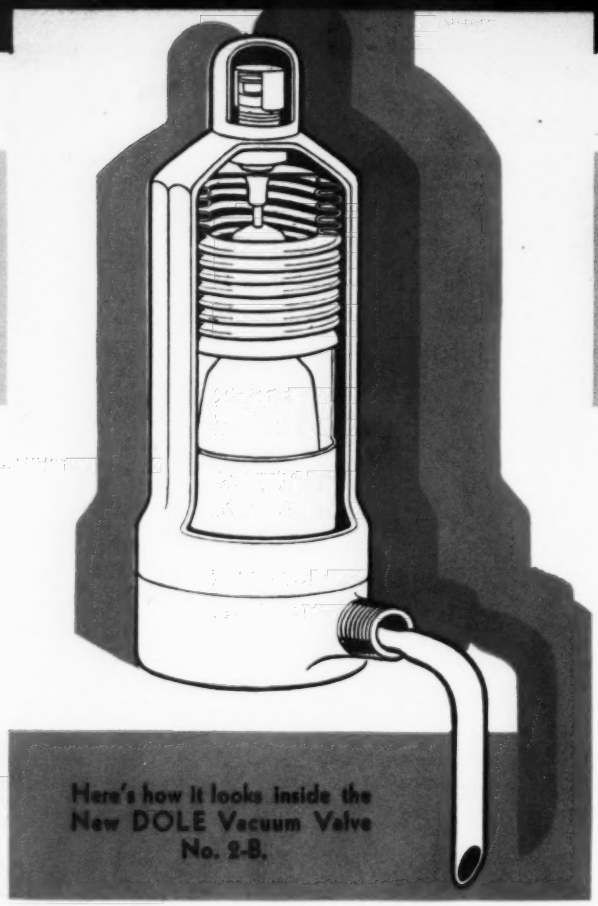
Cut this out carefully—someone you know will want to enter this contest and try for the prize money.

But before you give the page away,

CONTINUED ON NEXT PAGE

More Than 4,000,000 Dole Valves in Use!





Here's how it looks inside the New DOLE Vacuum Valve No. 2-B.

PRIZES and RULES FOR THE COLORING CONTEST

These prizes and conditions apply to this, the fifth of the six competitions. Each competition is separate and complete in itself.*

Prizes—1st prize - - $50.00 cash
2nd prize - - $25.00 cash
3rd prize - - $15.00 cash
4th prize - - $10.00 cash
Fifty consolation cash prizes of $1.00 each

The prizes will be awarded for the most attractive and neatest coloring job done on the outlined valve and fish shown on the reverse page. To insure absolute fairness the Editor of Domestic Engineering, a representative of the Plumbers Trade Journal and two prominent artists—Mr. Ellsworth Young and Mr. Edw. T. Grigware—will decide the awards. Their decisions will be final. No particular skill is required to enter—everyone should try. Names of winners will appear as soon as possible in this book.

Remember, anyone (not connected with The Dole Valve Company) may enter.

Use paints, crayons, or ink—Any color you wish to tint the outlined valve and fish. The ones we show in color are just a suggestion. You don't have to use the same colors.

Carefully cut out the whole page and send it with your full name, your age and complete address to—

THE DOLE VALVE COMPANY
1931 Carroll Avenue Chicago, Illinois

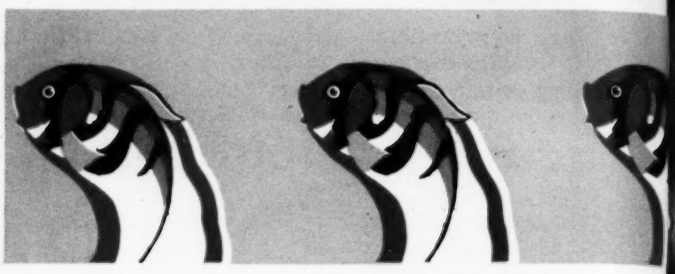
You must mail the page before midnight, February 10. Entries postmarked later can not be considered. You may send as many entries as you wish for all or any of the six competitions. Watch next month for the 6th competition.

*There will be a special award of one $100.00 cash prize for the best complete series of six—enter each and all of the six competitions. Send them before their closing dates.

NOW, READ THE RULES AGAIN, CAREFULLY.

THE DOLE VALVE COMPANY

1913-1933 Carroll Avenue - - Chicago, Ill., U. S. A.



CONTINUED FROM THE OTHER SIDE

MORE BUYERS ARE ATTRACTED

let us remind you that thousands of heating contractors have found new and bigger profit handling Dole Vacuum Valves No. 2-B.

The reasonable list price, $4.00 each, tempts many home and apartment owners to install Dole Vacuum Valves No. 2-B on their one-pipe systems, to enjoy the comfort and fuel saving of "vacuumising."

For performance Dole Vacuum Valves No. 2-B cannot be beaten. They are honestly made—they carry a written guarantee for five years. They pass every test—successfully.

Remember, too, that wherever there is an air valve need Dole Syphon Air Valves No. 1 do a thoroughly good job. List price $1.50 each—there is a nice margin of profit for you.

No money is thrown away on return trips for adjustments and complaints when you install Dole Valves.

Go after business when business needs going after!

We can show you how to make money and keep on making money with Dole Valves.

Write today for attractive quotations and a supply of literature, showing the complete line of Dole Valves, imprinted, free, with your name and address.

Dole

Vacuum Valves No. 2-B
Straight Shank Vacuum Valves No. 6-B
Syphon Air Valves No. 1
Straight Shank Quick Vent Air Valves No. 3-A ⅛"
Straight Shank Quick Vent Air Valves No. 3-B ¼"
Straight Shank Quick Vent Air Valves No. 3-C ¾"
Quick Vent Air Valves Nos. 8 and 9 (Vacuum)
Compound Gauge—4½"

VALVES

of the wholesaler's task. He may, for example, assume the delivery expense by calling for the merchandise; or he may eliminate the distributor's credit and collection costs by paying cash in advance. The important thing to keep in mind is that the distributor of plumbing and heating supplies may be eliminated, but *his job remains.*

Now the question is: Who can do the job most efficiently and with the greatest ultimate profit to the plumber? Who can perform the wholesale functions most economically?

Despite all sorts of experiments to go around the distributor, it is the consensus of opinion that the distributor still is the most economical link in the chain of distribution of plumbing and heating supplies. Ever since the plumbing industry assumed a position of importance in American business life, the wholesale functions were performed by the distributor, usually in a most creditable manner.

"Ever since the plumbing Industry assumed a position of importance in American Business life, the wholesale functions were performed by the distributor, usually in a most creditable manner . . . None of these functions can be eliminated and the proper margin must be provided to take care of them satisfactorily."

Why the Distributor Is Essential to the Plumber

Naturally, there must be some good reasons why the distributor of plumbing and heating supplies has persisted all these years and still serves a large clientele of prosperous and thriving customers. Nor are these reasons hard to find. All one must do is merely to state or briefly analyze the ways in which the distributor serves his trade.

1. *Plans for Customers.*

The distributor anticipates the plumber's requirements and is always prepared to fill his needs. He warehouses complete stocks of all kinds of plumbing fixtures, fittings, and supplies. Thus, he always has the right merchandise, at the right price, and in the right amounts.

2. *Buys for His Trade.*

He acts as a purchasing agent for his customers. He carries a representative stock of thousands of items gathered from hundreds of manufacturers. Just imagine the time and energy that would be needed by the plumber in buying goods direct from manufacturers. Think of thumbing hundreds of catalogues in search for the numerous items to be bought, or of interviewing dozens of salesmen carrying manufacturers' lines!

With the distributor on the job, the master plumber can reach a number of manufacturers with one two-cent stamp or have one salesman calling on him who represents many and varied sources of supply.

3. *Insures Fair Prices for Quality Merchandise.*

Buying in large quantities, the distributor insures fair prices to his customers. Many of the quantity discounts which he receives and the economies which he effects through lower transportation rates are passed on to customers in the form of lower prices. Considering the technical knowledge and wide experience required to distribute quality merchandise satisfactorily, the efficient distributor's prices are fair and reasonable.

4. *Furnishes Information.*

The distributor maintains a sort of information bureau, which is as near to his customers as their telephones. Plumbers can use this service to great advantage in lowering their cost of installation work.

5. *Grants Credit.*

The distributor carries his customers along on a credit arrangement which permits them frequently to complete their jobs without investing very much money. To be sure, this service is sometimes abused and plumbers expect the distributor to act as their banker. When used with care, however, the credit service rendered by the distributor is a boon to the plumber and to the manufacturer as well. In the most advanced stage, the credit arrangement even enables the ultimate consumer to buy plumbing fixtures at "a little down and a little each

Picture taken at the dinner party given by the Jobbers' Credit Association, New York City, at the Hotel Commodore

Where Everybody is HEAT Happy

COMFORT MAKES HIGHER INDIVIDUAL EFFICIENCY

Sylphon No. 875 Automatic Radiator Valves bring heat harmony to any steam heated apartment, home, office, or factory building. They save fuel also by preventing room temperature fluctuating and repeated adjustment. These new Sylphon complete control units, responding to slightest changes in the air temperature, automatically regulate the steam flow to the radiators.

Once the marked thermostatic head is set, they maintain that constant degree of warmth desired by the occupants of each room. Without any further radiator attention Sylphon Radiator Valves hold one room "Cool," one "Medium" and another "Hot" and so on with the whole thermometer range of comfort as the selective limit.

THE AUTOMATIC RADIATOR VALVE

Banishes Fuel Wasting, Fluctuating Temperatures

Room temperatures never get "too Hot" or "too Cold" when a Sylphon 875 Radiator Valve is on guard. It is a combination Packless Valve and Thermostatic Control Unit, easily installed, inexpensive and without electrical or mechanical accessories to get out of order. Its use prevents uneven, wasteful and injurious heat. Introduce this practical automatic radiator control. It means more profit to you in sales, installations and customer appreciation. Both angle and globe types fully described in our literature.

Sylphon TRADE MARK

WRITE NOW FOR BULLETIN AD-250.

FULTON SYLPHON CO.
KNOXVILLE, TENN., U.S.A.

Representatives in all Principal Cities in U. S. A.—European Representatives Crosby Valve and Eng. Co., Ltd., 41-2 Foley St., London, W. 1., Eng.; Canadian Representatives, Darling Bros., Ltd., 140 Prince St., Montreal, Que., Canada.

month." Usually, the distributor's credit arrangements are intelligent and helpful, largely because he is familiar with local conditions and is in constant personal touch with his trade.

6. *Provides Complete Showroom.*

Every progressive distributor usually maintains a complete showroom to which the plumber is invited to bring his customers to make their selections. This arrangement frequently saves the plumber the expense of having a showroom of his own. Furthermore, the wholesaler's showroom is much more complete and fitted up with the most modern equipment, thereby making sales to consumers large and easier. It is, therefore, much to be regretted that plumbers have made too little use of such large investments in showrooms.

7. *Sales and Business Service.*

The distributor's salesmen are placed in a position to assist the master plumber in closing contracts for new and old work. They are a mine of information. They are trained to help their customers along merchandising lines and keep them informed about new merchandise, sales possibilities, and up-to-date methods of securing more business.

8. *Adjusts Complaints.*

All claims and complaints can be directed at a single target. It is not necessary for the plumber to correspond with hundreds of manufacturers, or to wait until the hordes of salesmen call upon him. The distributor stands ready at all times to clear all just complaints quickly and to the satisfaction of all concerned.

9. *Makes the Plumber More Efficient.*

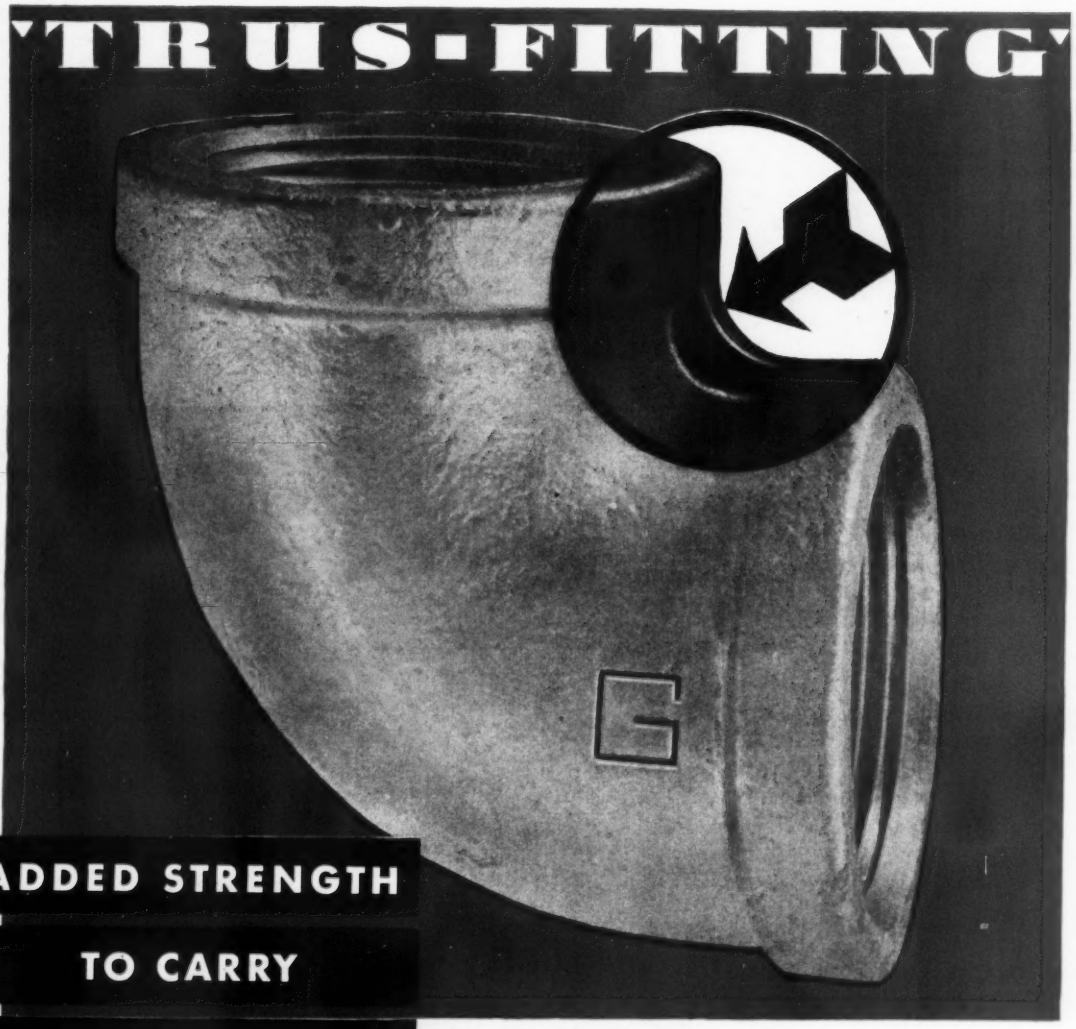
He simplifies the plumber's buying job. His purchases can be concentrated, instead of buying goods from hundreds of manufacturing firms. Every plumber represents a good potential customer because the distributor handles a complete line of merchandise. For this reason even the smallest customer receives careful consideration and courteous treatment. The plumber is thus able to spend more time in selling goods and in performing the technical work for which he is best fitted.

10. *Increases Turnover.*

By carrying full stocks and through his quick delivery service, the distributor assures the plumber a faster turnover. Every progressive plumber knows that in order to be successful he must devote much of his time to merchandising and make every effort to turn his stock more rapidly.

After a little consideration, one is forced to the conclusion that the distributor of plumbing and heating supplies stands for progress. As long as he operates with a reasonable degree of efficiency, he represents to the plumber convenience, promptness of service, intelligent co-operation, and a profitable source of merchandise.

If the distributor were not here today he would certainly have to be invented. Even the most modern industries have found him indispensable. Just observe how radios, automotive equipment and electric refrigerators are marketed. In all of these relatively new industries, the distributor or wholesaler occupies a prominent position. A better form of distribution than through the distributor remains to be discovered. So far, *the distributor* of plumbing and heating supplies *represents to most plumbers the shortest route to long profits and good service.*



ADDED STRENGTH
TO CARRY
EMERGENCY LOADS

A HUSKY WORKMAN forcing pipe ends into meeting can make it mighty tough on fittings. A pipe line broken loose from its hanger can multiply the load fittings must carry.

Provide against these extra strains . . . these added loads . . . by using Square "Gee" Trus-Fittings.

Their rugged truss-reinforcement insures an abundance of reserve strength with which to meet emergencies. Yet they cost no more than ordinary fittings!

Grabler engineers are always at work on refinements and improvements to make sure that "your fitting problem is solved when you say Square 'Gees'".

The GRABLER MANUFACTURING COMPANY
6565 Broadway · · · *Cleveland, Ohio*
Warehouses: New York, Chicago, Los Angeles, San Francisco

YOUR FITTING PROBLEM IS SOLVED WHEN YOU SAY SQUARE "GEES"

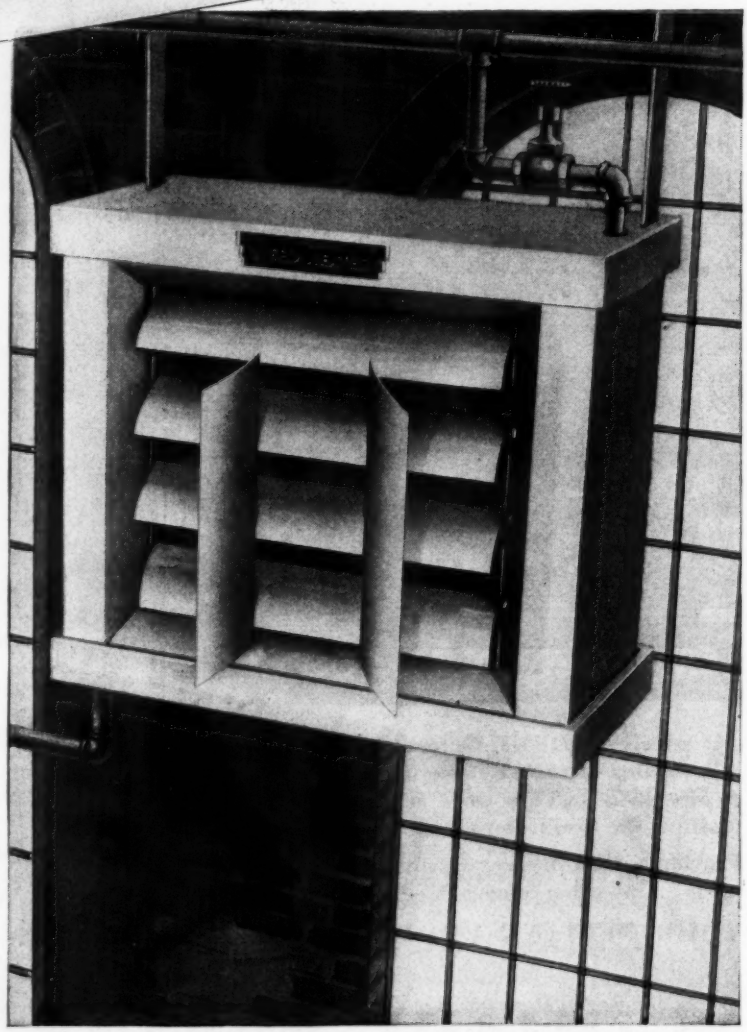
SQUARE Pipe

"GEE" Fittings

MALLEABLE, CAST IRON DRAINAGE, BRASS

Shipment within 48 hours!

WHEN YOU ORDER SPEED HEATERS



HEAT needed... and needed at once! This is the season when demands for speedy installation of heating equipment must be met.

When the rush order comes in, remember that Sturtevant is geared up to provide on-the-dot shipment of Speed Heaters! Remember that the entire Sturtevant organization, from Coast to Coast and from Maine to the Gulf, is "on its toes"... ready to show you what speedy Speed Heater service means.

Speed Heaters for steam pressures up to 250 pounds and with standard voltage motors, D.C. or A.C., are stocked at vantage points and can be shipped within 48 hours.

If you need unit heaters speedily... phone, wire or write the nearest Sturtevant or Crane Co. office.

The Sturtevant Speed Heater is sold by

CRANE CO.

through dependable heating contractors everywhere

B. F. STURTEVANT CO.

Main Offices: HYDE PARK, BOSTON, MASS.—CHICAGO, ILL., 410 No. Michigan Ave.—SAN FRANCISCO, CAL., 681 Market St. *Branch Offices in Principal Cities.* Canadian Offices at: Toronto, Montreal and Galt. Canadian Representatives: Kipp Kelly, Ltd., Winnipeg. Agents in Principal Foreign Countries.

---COUPON---

B. F. STURTEVANT COMPANY,
(Mail to the nearest Main or Branch Office)

I would like a copy of The Speed Heater "COMPLETE DATA" Catalog.

☐ Check here...and one of our men will call.

Company.....

Street.....

City..... D.E. 1-10-31

Sturtevant
(REG. U. S. PAT. OFF.)

SPEED HEATERS

Business Personals

ALEX K. TINKER has been elected vice president and sales manager of the Lincoln Niagara Corp., North Tonawanda, N. Y. Mr. Tinker was formerly with the Buffalo, N. Y., office of the National Radiator Corp. Prior to that he was associated with Hoffman Specialty Co., Inc., Waterbury, Conn., and Landon Radiator Co., Inc., North Tonawanda.

H. S. MADDOCK, vice president of Thomas Maddock's Sons Co. prior to its consolidation with Standard Sanitary Mfg. Co., Pittsburgh, Pa., has announced the formation of H. S. Maddock, Inc., Trenton Trust building, Trenton, N. J. The new organization, confining its activities to no particular field, is offering a management and advisory service.

CLAXTON E. ALLEN, formerly manager of the Southwestern district of the Westinghouse Electric and Manufacturing Co., was elected a commercial vice president of that company at a recent meeting of its board of directors. He will make his headquarters in East Pittsburgh, Pa., and will be associated in his new capacity with W. S. Rugg, vice president in charge of sales. Mr. Allen will devote his attention to furthering the effectiveness of the distribution of the company's products which pass through merchandising channels. His duties of coordination will extend over the domestic appliance division and other divisions serving the household market. He has been associated with the Westinghouse company since 1909. He is a Fellow of the American Institute of Electrical Engineers and is a past president of the St. Louis (Mo.) Board of Trade.

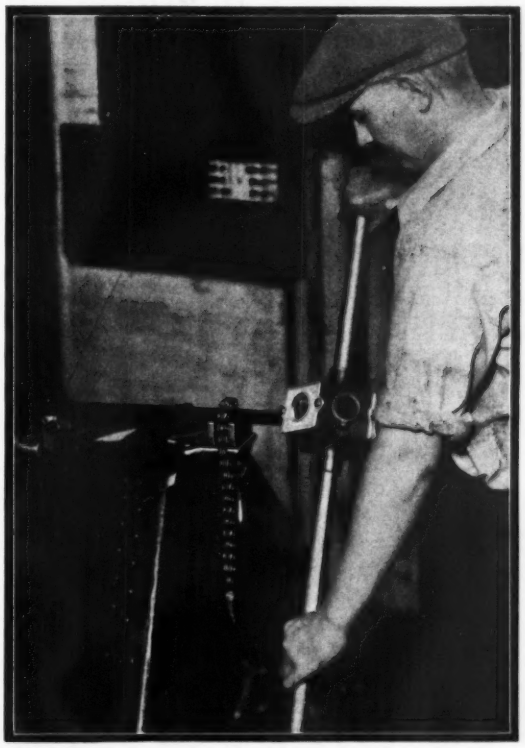
Claxton E. Allen

GEORGE E. STEELE has been appointed assistant to S. N. Stevens, president of the Hills-Stevens Co., Inc., Grand Central Terminal building, New York City. Mr. Steele, with an office at 131 State street, Boston, Mass., is confining his efforts to the New England territory. The company has recently been made representative of the William B. Scaife & Sons Co., Oakmont, Pa., handling its range boilers and storage tanks.

HENRY STEIN has been appointed by Hoffmann & Billings Mfg. Co., Milwaukee, Wis., as its representative in the metropolitan district of New York City, for its showers and shower stalls. Mr. Stein will maintain headquarters at 50 Cliff street, New York City.

JAMES K. AIMER has been appointed assistant general manager of sales in charge of railroad, locomotive and car equipment sales, also bar iron and billet sales for Reading Iron Company, Reading, Pa. Mr. Aimer has his headquarters at 230 Park avenue, New York City. He will assume complete supervision and direction of all sales to railroads, and in addition will direct the sales of the company's charcoal iron boiler tubes, formerly under

ARMSTRONG BROS.
Better PIPE TOOLS



Improved pipe tools—the largest line for work on pipe up to 2 inches

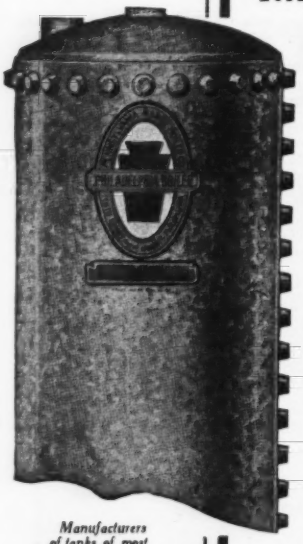
After over 30 years of specialization in machinists' tools, after developing a line of tools that have changed shop practice the world over, tools that are now used in over 96% of the machine shops and tool rooms, Armstrong Bros. Tool Co. created a line of *better* pipe tools, better in design, machining and materials—clean-cut tools, easy-operating, fast-working, long-lasting.

Write today for Cat. P-10 which shows, describes, gives sizes, features and prices of all ARMSTRONG BROS. Better Pipe Tools.

Today ARMSTRONG BROS. Pipe Tools compose the most complete line of tools for working pipe in sizes up to 2 inch. Each is an improved tool created after careful study of all types and makes. You can tell them by the Arm-and-Hammer Trade Mark.

ARMSTRONG BROS. TOOL CO.
"The Tool Holder People"
323 N. Francisco Ave., Chicago, U.S.A.

PENNSYLVANIA
RANGE BOILERS



Lead the Way to Additional Profits

When you install a Pennsylvania Range Boiler on a job, the extra, trouble-free service it gives builds up your reputation and your customers' good will.

Standardize on Pennsylvania Range Boilers and watch your sales increase.

In Philadelphia for over 35 years.

Manufacturers of tanks of most every description on specification.

Ask your jobber to supply you.

PENNSYLVANIA RANGE BOILER CO.
Main Office and Plant:
S. W. Cor. 24th and Washington Ave., Philadelphia

TRENTON BRASS PRODUCTS

You'll Never Go Wrong!

LOOK FOR OUR CATALOG IN SWEET'S CATALOG

You'll never go wrong on Trenton Brass Products. They're made with the thought in mind of upholding our reputation and if they do that, and they do, they'll uphold yours.

Ask your jobber to supply you.

The Trenton Brass & Machine Co.
Trenton, New Jersey

Represented by
ROLLIN C. WILSON

7 E. 42nd St.
New York, N. Y.
261 Franklin St.
Boston, Mass.
427 N. Broad St.
Elizabeth, N. J.

the direction of G. H. Woodroffe, metallurgical engineer. Mr. Woodroffe will serve in an advisory capacity to the general sales organization with respect to technical problems.

Paul Wunderlich, consulting engineer, has established offices in the Grand Central Terminal building, New York City. Mr. Wunderlich, specializing in heating, ventilating, electric and sanitary engineering, was for some years on the staff of Clyde R. Place.

John J. Foy has been appointed representative in southern California for the Kennedy Valve Manufacturing Company, of Elmira, N. Y. He will maintain headquarters at 210 Transportation building, Los Angeles, Calif. Mr. Foy has had fifteen years of experience in serving industrial plants, plumbing and heating contractors and architects. He is representing the Kennedy Valve Manufacturing Company exclusively.

Wyman Howells, district sales representative, Reading Iron Company, 1302 First National Bank building, Pittsburgh, is making a good recovery after undergoing an operation for appendicitis, and will resume his duties in the near future.

John A. Quinn, formerly with John M. Uhler and also at one time associated with The Burlington Brass Works, Burlington, Wis., has joined the sales force of J. B. Wise, Inc., Watertown, N. Y. Mr. Quinn will make his headquarters at the company's eastern sales office, 41 East 42nd street, New York City. Mr. Quinn is well acquainted in the metropolitan district and surrounding territory.

Gordon Black, of Portland, Ore., Northwestern representative of the Woodward-Wanger Co., Philadelphia, Pa., visited his company's Chicago office on January 3 on his way back to Portland after his annual visit to the home office.

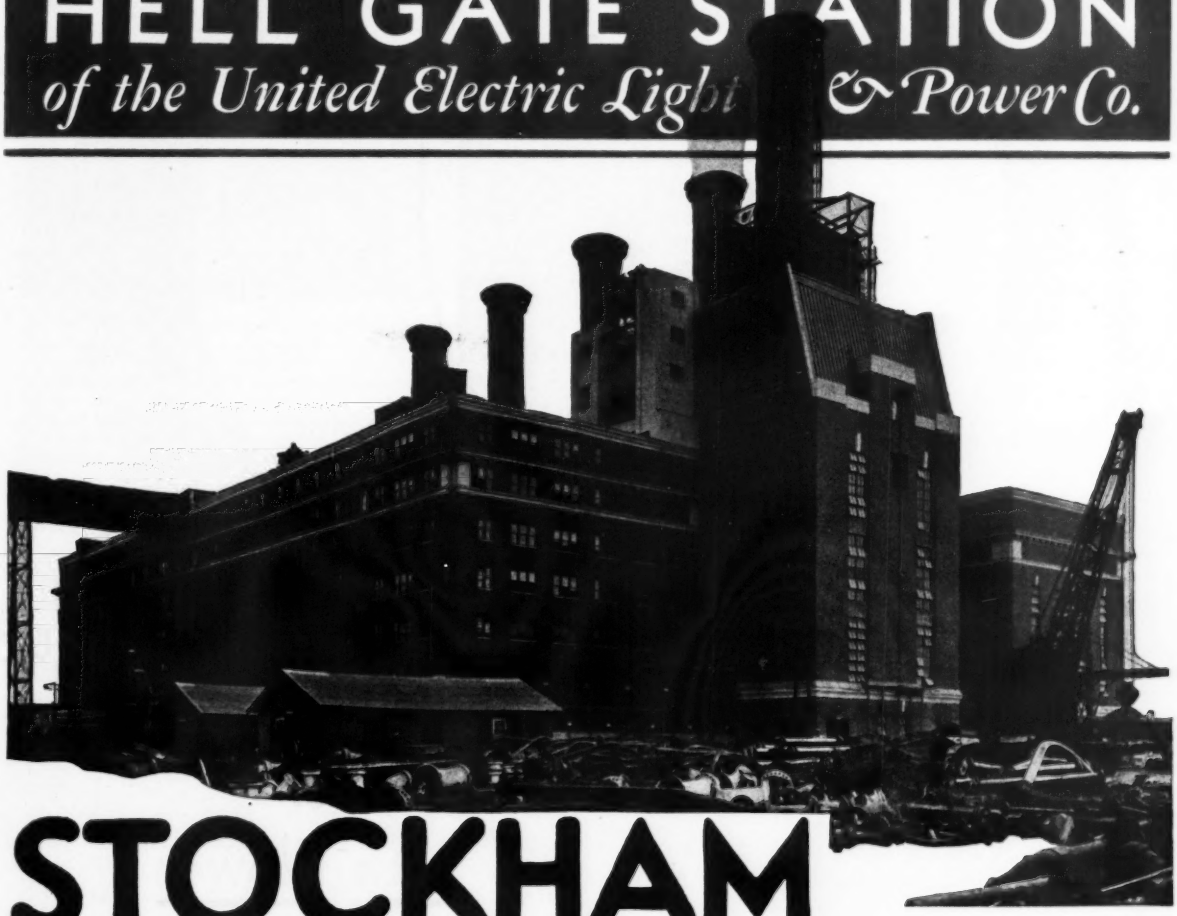
John W. Cooper has been placed in charge of the New England territory for the Cohoes Rolling Mill Co., Cohoes, N. Y. He will make his headquarters in Boston, Mass. Mr. Cooper was formerly assistant sales manager of the company, which position has been taken over by Arthur F. Nertney.

Aden E. Smith has been appointed sales manager of The D. A. Ebinger Sanitary Mfg. Co., Columbus, Ohio. He has been associated with the company since June, 1921. Prior to joining the company, Mr. Smith was chief plumbing inspector of the state of Ohio, and was chief of the bureau of plumbing of the Ohio state department of health. Later he did technical selling and planning of sewage disposal and water supplies. In his new capacity he has as his immediate assistants, A. F. C. Perrin and Edw. Erdmann.

R. O. Foard, Jr., Healey building, Atlanta, Ga., has been named sales representative in the Atlanta territory for the Portland Iron Works, of Portland, Ore. Mr. Foard also represents The C. F. Church Mfg. Co., of Holyoke, Mass.

Charles Cowan, formerly with the Standard Sanitary Manufacturing Co., in Atlanta, Ga., has joined the sales force of The Mueller Co., 376 Nelson street, Atlanta. Mr. Cowan has been identified with the plumbing and heating trade in the Atlanta territory for several years.

HELL GATE STATION
of the United Electric Light & Power Co.



STOCKHAM FITTINGS

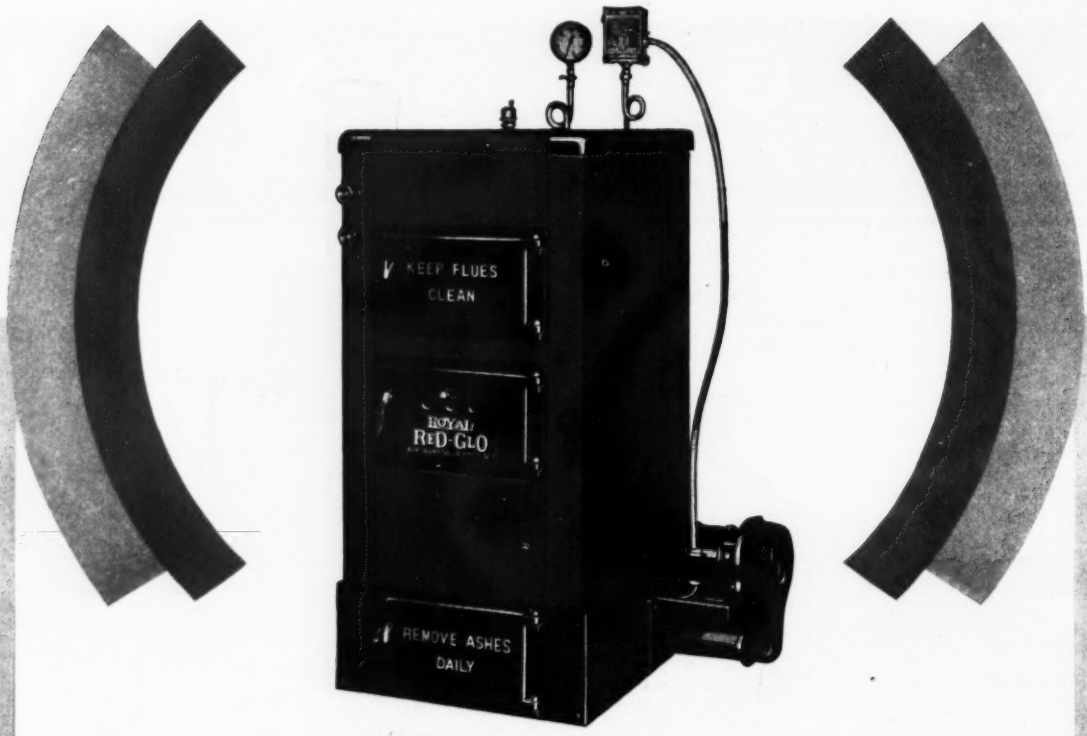
WORLD'S largest power plant—and Stockham Electric Cast Steel Fittings for its high pressure work on the new 2,000,000 pound boiler extension and on the re-building program of nine boilers during the past two years. Stockham dependability in meeting specifications is not by chance, but a natural result of the care that accompanies every stage in Stockham production. Large job or small, ample stocks and vast plant capacity insure speedy delivery of any of the over 12,000 different fitting patterns in the Stockham Line. Complete catalogue on request.

STOCKHAM PIPE & FITTINGS CO., BIRMINGHAM, ALA.

STOCKS IN: BOSTON NEW YORK CHICAGO HOUSTON LOS ANGELES

There is a Stockham Fitting for every pipe line use

CAST IRON	MALLEABLE	ELECTRIC CAST STEEL
Screwed • Flanged	*Standard • Extra Heavy*	*Screwed*
Drainage	*Hydraulic • Oil Country*	*Flanged*
Sprinkler	*Fire Line • Railroad 300 lb.*	



Something New!

The RED BLAST Boiler with Blower

Here is a new and startling development in heating—a boiler with blower and regulator attached. The Royal RED BLAST Boiler will burn buckwheat and the cheaper sizes of anthracite with remarkable efficiency and little attention. It provides automatically controlled heat with a great saving in costs.

Other important features are: attractive, new insulated jacket; long combustion and flue travel; easily assembled individual tie rods; 18-in. and 28-in. sizes. Available, when desired, without blower and controls in the RED-GLO Boiler, which is otherwise similar to the RED BLAST.

Write for complete information about

RED BLAST and RED-GLO Boilers

Manufactured by

HART & CROUSE CO.

UTICA, N. Y.

Boston New York Chicago Washington Detroit Pittsburgh

A COMPLETE LINE OF FURNACES AND BOILERS FOR EVERY TYPE OF BUILDING

Warm Air Furnace | 28" Sectional Boiler | Large Sectional Boiler | 26" Red-Glo Boiler | 17" Red-Glo Boiler | Round Boiler

Front row, left to right: H. A. Thrush, president; Edward Noland, sales engineer; Lewis Dietz, sales engineer; Paul Thompson, secretary; Lawrence Sargent, head of engineering department. Second row: Mark Thrush, superintendent of factory; Thomas Lanphier, sales engineer. Back row: Ray A. Peters, advertising counsel; Tom Coulter of Homer C. Perkins Company, Philadelphia; Jack Munro, sales engineer. Photo taken at annual sales conference of Thrush Co.

H. A. Thrush & Co. Holds Sales Conference

The annual conference of the sales organization of H. A. Thrush and Company was recently held at the home offices, Peru, Ind. A round-table discussion and school were conducted daily, with a diligent study being made of the Thrush line of products and future market possibilities.

During the conference, plans for the coming year were outlined and the organization made acquainted with the recent additions to the firm's line of products.

One of the outstanding sessions of the week's conference was a luncheon meeting at the Bearss hotel, which was in charge of Ray A. Peters. Each of the men gave his viewpoint on different phases of the company's program for 1931 and reviewed the activities of 1930. It was brought out that the Thrush company has been a consistent advertiser and plans for the future include a consistent advertising campaign.

As a conclusion to the luncheon, H. A. Thrush, president, gave a brief address in which he reviewed the history and growth of the company from its inception and paid high tribute to all persons connected with the organization for their untiring efforts. He was especially complimentary in his remarks concerning the factory employes.

◆

A. S. H. V. E. Mails Ballots to Members

The American Society of Heating and Ventilating Engineers from its office at 51 Madison avenue, New York City, has forwarded ballots for the elections of officers and of members of the committee on research for 1931. The ballots, prepared by the nominating committee and by the council, respectively, are returnable to Secretary A. V. Hutchinson not later than January 26. The names of officers appearing on that ballot are as follows:

For president, W. H. Carrier of Newark; for first vice president, F. B. Rowley of Minneapolis; for second vice president, W. T. Jones of Newtonville, Mass.; for treasurer, F. D. Mensing of Philadelphia; for members of the council: three year term, E. K. Campbell of Kan-

The long years of trouble-free service delivered by WEISTEEL Shower Cabinets are of great importance to the plumber as well as to the owner. Plumbers who install WEISTEEL Cabinets keep the profit they make on the sale because they are not compelled to spend it in service work.

WEISTEEL Integral Cabinets cannot leak because they are securely welded into a single unit of steel. They are easily installed anywhere, on any kind of floor, against any kind of walls. Any standard make shower head and valve can be used with these cabinets.

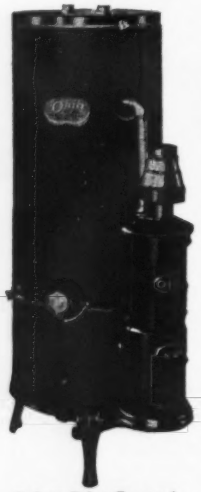
Our fifty-five years of experience in the manufacture of metal building products is back of the creation and production of these cabinets. Full details about WEISTEEL Shower Cabinets will be furnished at your request without obligation or cost.

Henry Weis Mfg. Co., Inc.

ELKHART, INDIANA

Licensed Manufacturers

The Heater you can safely recommend



Safety Pilot Control
—No Extra Cost

WINTER days make it easier than ever to sell OHIO *Automatic* Water Heaters . . . Why don't you write today for our attractive proposition to dealers? Here are some OHIO advantages — LOW first cost, LOW operating costs, BIG *plumbers' profit*. Several attractive models to choose from — $50 and up. Ample capacities — 15 to 1000 gallon. A heater to fit each job.

We sell through the plumbing trade exclusively.

THE OHIO HEATER CO.
Columbus, Ohio, U. S. A.

OHIO
Automatic
WATER HEATER
"No Finer Heater Built"

sas City; E. O. Eastwood of Seattle; Roswell Farnham of Buffalo, and E. H. Gurney of Toronto, Canada; to fill unexpired two year term, D. S. Boyden of Allston, Mass.

The names on the ballot prepared by the council for committeemen on research to succeed those whose terms expire are: C. A. Booth of Buffalo; F. B. Howell of New York; Walter Klie of Cleveland; F. B. Rowley of Minneapolis, and J. H. Walker of Detroit.

◆

Addresses Meeting of Anthracite Club

W. H. Oleson, manager of the Heating and Piping Contractors Boston Association, was the principal speaker at the December dinner meeting of the Anthracite Club of Rhode Island, held at the Narragansett hotel, on Thursday evening, December 11.

Mr. Oleson pointed out to the assembled architects, engineers, coal dealers, heating appliance salesmen and heating contractors the common purpose of all these factors in the heating industry, stating that all had just one thing to sell, comfort.

The speaker stressed the procedure which usually occurs when people decide to build a new home or modernize their present residence, calling attention to the inefficient heating plants that often result from competitive bidding. He stressed the development of the Heating and Piping Contractors National Association's standards for the sizing of boilers, radiators and pipes and explained how certified heating is working in the 32 cities where it is now in operation. Keen interest was shown in the subject and approximately an hour was devoted to questions following the talk.

◆

Death of Mary Nevins McAlear

Mrs. Mary Nevins McAlear, wife of James McAlear, president of the McAlear Manufacturing Co., Chicago, died recently at her home, 1236 Pratt boulevard, Chicago. Mrs. McAlear had been ill for some time.

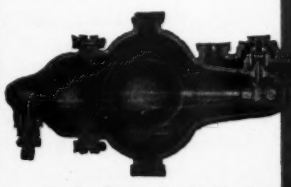
◆

Women Attend Monthly Meeting of New York Chapter, A. S. H. & V. E.

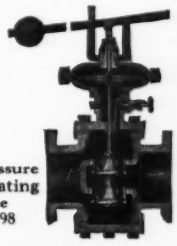
With women present at the monthly meeting for the first time in its history, the New York chapter of the American Society of Heating and Ventilating Engineers met December 15 in the auditorium of the Westinghouse Lighting Institute, where a discourse by L. J. Murphy, Westinghouse engineer, on the application of motors in the heating and ventilating industry was heard. Referring to the comparatively recent increase in the number of motors used in that field, the speaker stated that one of the biggest problems confronting engineers is the development of a means of reducing vibration and hum in these rotating machines, accentuated by the low ceilings and thin wall construction which is prevalent in most new buildings. Until something definite in this direction is accomplished by the engineers, Mr. Murphy recommended the use of moderate speed motors.

The business meeting, which followed dinner served in the dining room of the Institute, was presided over by Alfred J. Offner, president of the chapter, who

McAlear



Duplex Water Feeder No. 826



Gas Pressure Regulating Valve No. 298

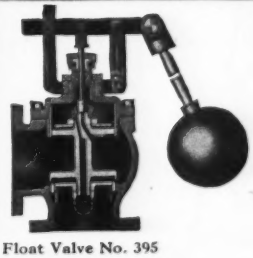
GAS PRESSURE REGULATING VALVES

All have exclusive McAlear features and improvements that guarantee sensitive, positive control. Made in three types: with or without stuffing box and pilot operated—spring or lever and weight control. Send for Section C with capacity tables, charts, etc.

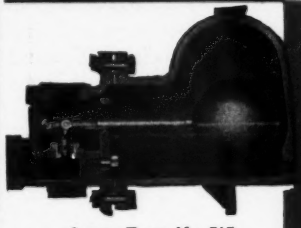
Pump Governors No. 425

FLOAT VALVES

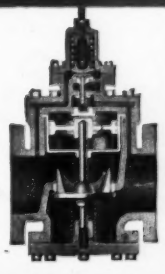
Made in three types: (1) Balanced lever type; (2) Single seated balance type; (3) Pilot operated, piston actuated types. Each is sensitive, positive and designed for all practical working pressures. Send for Section H.



Float Valve No. 395



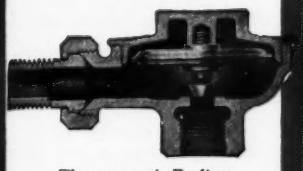
Steam Traps No. 717



Reducing Valve No. 277

REDUCING VALVES

Incorporate all practical improvements and refinements of construction. Are positive, sensitive in operation and low in upkeep cost. Made for all pressures and temperatures. Send for Section A.



Thermostatic Radiator Trap No. 20

LIQUID LEVEL CONTROLS

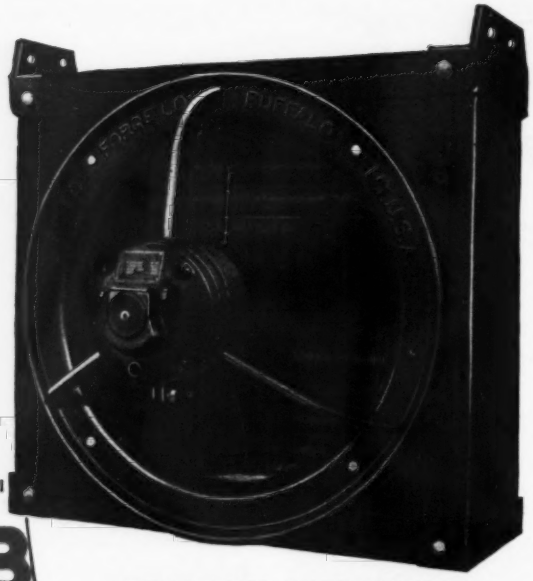
Ultra sensitive, accurate control of liquid levels in tanks or other vessels, regardless of pressure or temperature. There's a type and size for every need. Send for Section H.

Ball Bearing Liquid Level Control No. 822

for EVERY PRESSURE and LEVEL CONTROL NEED

THE McALEAR MFG. CO.
1913 S. Western Ave.
Chicago, Ill.

Sales Engineers in all Principal Cities



HEAT WITH UNIT HEATERS

BRENTON

"Buffalo"

The new Model "B" is suitable for ceiling, wall or bracket mounting and for either high or low pressure steam.

Improved fan design steps up but at no increase in power consumption. Full details on request.

Unit Heaters

BUFFALO FORGE CO., 483 Broadway, Buffalo, N. Y.

In Canada: Canadian Blower & Forge Co., Ltd., Kitchener, Ont.

called upon Louis T. M. Ralston, serving as chairman on a committee with William H. McKiever and H. Berkley Hedges for the purpose of reviewing the proposed building code, for a report. Supplementing the reading of a lengthy report containing numerous suggestions of changes in the code, Mr. Ralston stated that the chapter had not been asked to co-operate in drawing it up and while the proposals in the heating section seemed broad enough in scope, some of those pertaining to ventilating were rather radical. With Mr. Hedges reading paragraphs from the code, Mr. Ralston read each of the proposed changes which are to be submitted to the authors. The report was accepted.

Homer L. Hosking, New York manager of the Pacific Steel Boiler Corp., was elected to membership.

Space for N. A. M. P. Exposition Selling Fast

Demand for display space at the exposition to be held in connection with the 49th annual convention of the National Association of Master Plumbers, which is to be held in Milwaukee, Wis., next June, would indicate that manufacturers of plumbing and heating products have confidence in the outlook for the coming year.

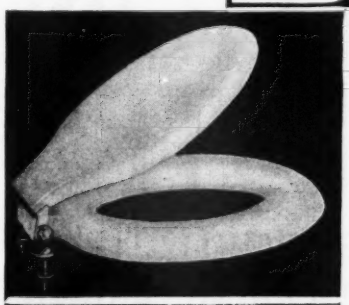
There are one hundred and twenty-six booths in the floor plan of the arena display in the Milwaukee Auditorium. In less than a week from the time the prospectus had been received from the printer, more than 50 per cent of these booths had been sold.

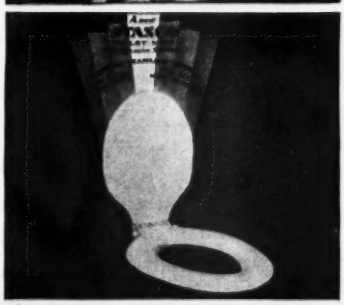
"The Milwaukee committee, speaking for President George H. Drake and the other National officers and committeemen, is glad to take this opportunity to thank these manufacturers for their wholehearted co-operation and loyal support," said F. C. Kuetemeyer, chairman of the National Convention and Exposition Committee.

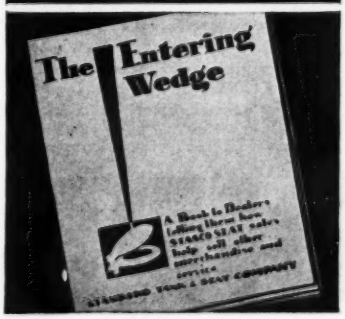
The firms which have already been assigned space at the Milwaukee exposition and the booths each has reserved follow:

Booth	
3	Bareham & Saunders—Turner Brass Works.
4	Standard Tank & Seat Co.
5 & 6	Jones & Laughlin Steel Corp.
7	Blake Specialty Co.
8 and 9	National Tube Co.
10	Norman Boosey Mfg. Co.
11 & 12	Fiat Metal Manufacturing Co.
13 and 14	Mueller Brass Co.
15	Decatur Pump Co.
16	Dayton Pump & Mfg. Co.
19	Central Tube Co.
24	Chicago Faucet Co.
25	W. A. Case & Son Mfg. Co.
28, 29, 45 & 46	Standard Sanitary Mfg. Co.
30, 31, 47 & 48	American Radiator Co.
32 & 33	Kewanee Boiler Corp.
34	C. F. Church Mfg. Co.
39 & 40	"X" Laboratories.
41	Kelly Brass Works.
42	Walker Dishwasher Corp.
43 & 44	Weil-McLain Co.
49	Sloan Valve Co.
50 & 51	The Conover Co.
52 & 53	The Imperial Brass Mfg. Co.
54 & 55	Josam Mfg. Co.
56 & 57	Chicago Pump Co.
58 & 59	Wolverine Brass Works.
60	Blue Seal Chemical Co.
61	J. A. Sexauer Mfg. Co.
62, 63, 79 & 80	Kohler Co.
64, 65, 66, 67, 81, 82, 83 & 84	Crane Co.
68 & 85	B. F. Sturtevant Co., Inc.
69	Excelso Products Corp.
70	Crest Mfg. Co.
71 & 72	Walworth Co.
73 & 74	Woodward-Wanger Co.
75	A. Y. McDonald Mfg. Co.
76	A. F. Curtin Valve Co.
77	The Nye Tool & Machine Works.
78	Hoffmann & Billings Mfg. Co.
86	Henry Weis Mfg. Co., Inc.
87	Badger Meter Mfg. Co.
90 & 91	Chase Brass & Copper Co., Inc.
92	The Duriron Co., Inc.
93	Johns-Manville Corp.
94	The Armstrong Mfg. Co.
95 & 96	The American Brass Co.
97 & 98	The Youngstown Sheet & Tube Co.
99 & 100	Mueller Co.
101 & 102	James B. Clow & Sons.
103, 104, 105	The Central Foundry Co.
106	EverHot Heater Co.
107 & 108	The Ridge Tool Co.

HELPING YOU SELL STASCO IN 1931







Profit-wise plumbers are selling more and more Stasco Empire Finish Seats. We believe that our Empire Finish is unexcelled by any other type of covering on the market today. Priced to fit the pocket book of even the most exacting buyers and backed by a five year guarantee, these seats meet every test of the shrewdest judges of value. Plumbers the country over are finding steady, profitable business in these seats.

And now Stasco offers you an exceptional campaign of sales help, including large space for advertising in The Saturday Evening Post, colorful window and counter displays for your shop, free folders to distribute to your customers, and a book of business-getting suggestions for your use.

Advertising to Your Customers

Full page space will be run in The Saturday Evening Post telling over 3,000,000 families about Empire Sealed Surface toilet seats —for sale at your shop.

Window and Counter Displays

A duplex window and counter display will be furnished free for your use. These splashy, colorful displays will bring customers into your shop. Remember—a seat sale paves the way for other business for you.

Folders For Your Customers

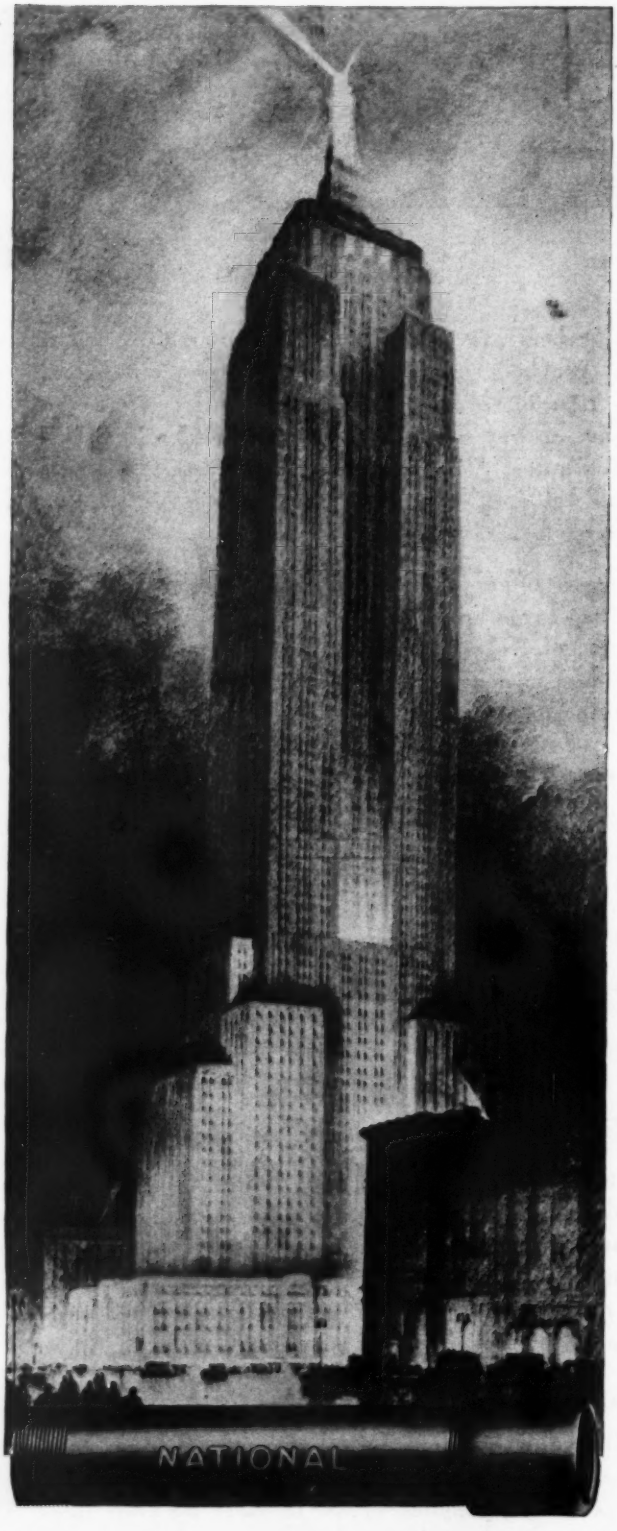
Colorful, attractive folders with your name and shop address printed on them will be supplied to you without charge. You may mail these to your customers or distribute them from door to door. Almost every home has at least one toilet. Your opportunities for new business in this line are great—and will help you build business for your other services.

Helpful Selling Suggestions For You

How to build your business for new profits—How to select prospective customers—How to bring them to your shop for service and plumbing supplies—How to speed up your sales. All of this and more, briefly told in this useful little book—free to Stasco dealers.

STANDARD TANK AND SEAT CO.

CAMDEN, N. J.



THE NATION SALUTES

ANOTHER ARCHITECTURAL AND ENGINEERING TRIUMPH

●

EMPIRE STATE BUILDING
New York City

Architects:
Shreve, Lamb & Harmon, New York City
Heating and Ventilating Engineers:
Meyer, Strong & Jones, New York City
Heating Contractors:
Baker, Smith & Company, New York City
General Contractors:
Starrett Bros. & Eken, Inc., New York City

Conceived in great daring, designed in a consciousness of means never before given to architecture, the new Empire State Building will lift its beacon to pierce the sky eighty-five stories above the streets of New York. Framed with steel, clothed in stone and concrete, fortified and made lasting by every provision that art or science commends—America salutes this latest architectural and engineering achievement. In such an edifice, the use of any material is a high recognition of merit.

As in other structures of advanced design and monumental character, NATIONAL Pipe has an important place in the Empire State Building—a large portion of the piping being NATIONAL—

America's Standard Wrought Pipe

NATIONAL TUBE COMPANY, Pittsburgh, Pa.
Subsidiary of United States Steel Corporation

US STEEL

NATIONAL PIPE

Convention Dates

January 13 to 15, 1931.—WISCONSIN—The annual convention of the Wisconsin Master Plumbers' Association, to be held at Milwaukee, with headquarters at the Hotel Pfister.

January 20, 21, and 22, 1931—ILLINOIS—The annual convention of the Ilinois Master Plumbers' Association, to be held at Danville, with headquarters at the Wolford hotel.

January 26, 27, 28 and 29, 1931—A. S. H. V. E.—The annual meeting of the American Society of Heating and Ventilating Engineers, to be held at the William Penn Hotel, Pittsburgh.

February 2 and 3, 1931—WEST VIRGINIA—The annual convention of the Master Plumbers Association of West Virginia, to be held at Parkersburg, with headquarters at the Chancelor hotel.

February 3, 4 and 5, 1931—OHIO—Thirty-ninth annual convention of the Ohio State Association of Master Plumbers, to be held at Canton, Ohio.

March 9, 10 and 11, 1931—INDIANA—The annual convention of the Indiana Society of Sanitary Engineers, to be held at Indianapolis.

March 16 and 17, 1931—KANSAS—The annual convention of the Kansas Master Plumbers' Association, to be held in Iola, with headquarters at the Kelly hotel.

April 6 and 7, 1931—OKLAHOMA—The annual convention of the Oklahoma State Association of Master Plumbers, to be held at Oklahoma City. Headquarters to be decided later.

April 13 to 18, 1931—A. O. B. A.—The eighth annual convention and oil burner show of The American Oil Burner Association, to be held in Philadelphia, Pa., with convention headquarters at the Benjamin Franklin Hotel. The oil burner show will be held on the exhibit floor of the Gimbel Building.

April 21, 22 and 23, 1931—TEXAS—The annual convention of The Associated Master Plumbers of Texas, to be held at Houston at the Rice Hotel.

May 6, 7, 8 and 9, 1931—H. & P. C. N. A.—The annual convention of the Heating and Piping Contractors National Association, to be held at Louisville, Ky., with headquarters at the Kentucky hotel.

May 4 and 5, 1931—FLORIDA—The annual convention of the Florida State Association of Master Plumbers and Heating Dealers, Inc., to be held at West Palm Beach.

May 11, 12 and 13, 1931—N. P. S. A.—The convention of the National Pipe & Supplies Association to be held at Cleveland, Ohio, with headquarters at the Hotel Hollenden.

June 23, 24 and 25, 1931.—N. A. M. P.—The forty-ninth annual convention of the National Association of Master Plumbers, to be held at the Auditorium, Milwaukee, Wis., with headquarters at the Hotel Schroeder.

June 23 and 25, 1931.—N. A. M. P. AUXILIARY—The annual convention of the Women's Auxiliary to the National Association of Master Plumbers, to be held in the Hotel Schroeder.

COMING TRADE EVENTS

January 12, 1931.—The Wisconsin State Apprenticeship Conference to be held at the Hotel Pfister, Milwaukee, Wis.

January 20, 1931—The mid-winter meeting of the Pennsylvania State Association of Master Plumbers, to be held at the Yorktowne hotel, York, Pa.

January 24, 1931—Meeting of the National Association of Plumbing and Heating Salesman at the Sylvania hotel, Philadelphia, Pa., called by President W. W. Morgan.

February 7, 1931—The annual dinner-dance of the New York University and Ventilating Engineers Society, to be held at the Park Central hotel, New York City.

February 9 to 20, 1931.—A short course in plumbing for master plumbers, plumbing instructors and plumbing inspectors, to be held in Madison, Wis., under the auspices of the Wisconsin Master Plumbers' Association.

February 10 to 14, 1931—The fifth Midwestern Engineering and Power Exposition, to be held at the Coliseum, Chicago.

June 22, 23, 24 and 25, 1931.—Exposition of plumbing, heating and allied products, in connection with the forty-ninth annual convention of the National Association of Master Plumbers, in the arena of the Auditorium, Milwaukee, Wis.

PRICE LIST

Genuine Barnes Pipe Cutters

January 1931

Size of Cutter ..	No. 1	No. 2	No. 3	No. 4	No. 5	No. 6	No. 6½	No. 7
Size of Pipe,....	⅛″ to 1″	½″ to 2″	1½″ to 3″	2½″ to 4″	4″ to 6″	6″ to 8″	8″ to 10″	9″ to 12″
Complete tool...	$4.50	$6.00	$10.00	$20.00	$30.00	$40.00	$45.00	$50.00
Hooks	1.75	2.60	4.55	9.50	13.75	20.00	23.00	25.00
Slides	.75	1.00	2.00	4.50	7.00	8.50	9.50	11.25
Nuts	.25	.25	*	*	*	*	*	*
Handles	1.00	1.25	2.25	4.50	7.00	9.25	10.25	11.50
Pins, per doz....	1.00	1.00	1.00	2.00	2.00	2.00	2.00	2.00
Cutter Wheels smooth or knurled	.50	.60	.80	1.00	1.10	1.10	1.10	1.10
Approx. Weights	3 lbs.	5 lbs.	9 lbs.	14 lbs.	23 lbs	28 lbs.	34 lbs.	51 lbs.

*Nut and hook in one piece in these sizes

THE best materials and finest workmanship make the Genuine Barnes the best pipe cutter on the market . . . A tool that cuts true, is quick, economical and life-lasting.

You'll find this red tag on every Genuine Barnes

Cut out this announcement and keep it handy —you will want to refer to it soon.

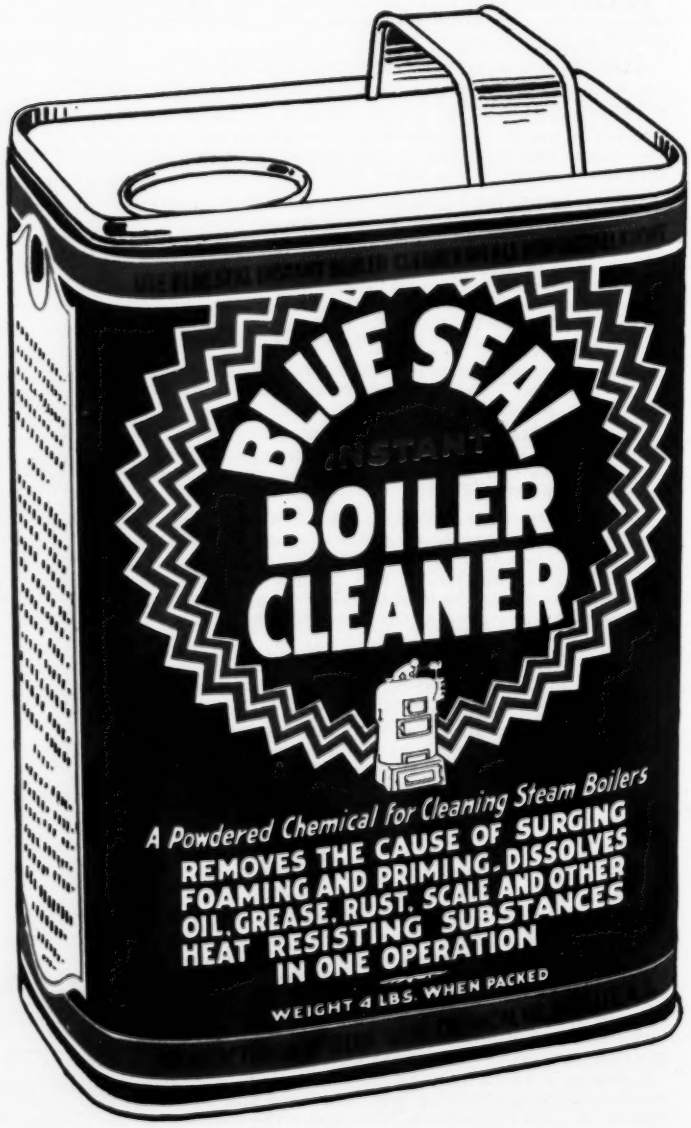
The **Barnes Tool Company,** Inc.

Creators of the Genuine Three-Wheel Barnes

New Haven ' ' ' Conn.

NO MAGIC NEEDED!

TAKE THE MYSTERY OUT OF BOILER CLEANING, WITH—


BLUE SEAL
INSTANT
BOILER
CLEANER
A Powdered Chemical for Cleaning Steam Boilers
REMOVES THE CAUSE OF SURGING FOAMING AND PRIMING. DISSOLVES OIL, GREASE, RUST, SCALE AND OTHER HEAT RESISTING SUBSTANCES IN ONE OPERATION
WEIGHT 4 LBS. WHEN PACKED

AFTER all, why should the cleaning of boilers be as mysterious as pulling rabbits out of a silk hat? Why should plumbing and heating contractors have to worry about water conditions, type of fuel used, type of boiler or a thousand and one other things—before making sure that a boiler cleaner will work?

There's no trick about it when you use BLUE SEAL INSTANT BOILER CLEANER. It's as simple as A-B-C—and it's guaranteed under any conditions to make good—or we will! BLUE SEAL INSTANT BOILER CLEANER removes the cause of surging, foaming and priming, dissolves oil, grease, rust, scale and other heat-resisting substances—*quickly, instantly and in one operation!*

Send for details of Trial Offer and Blue Seal Merchandising Plan.

Manufacturers of

BLUE SEAL DOUBLE STRENGTH
DRAIN PIPE SOLVENT

And

BLUE SEAL DE-LUXE
ENAMEL CLEANER

At Your Wholesaler only—
or write direct

BLUE SEAL CHEMICAL COMPANY

ROSELLE, NEW JERSEY

THE TRADE NEWS

News of Plumbing and Heating Contractors

H. & P. C. to Hold National Convention in Louisville

The Heating and Piping Contractors National Association has decided to hold its annual convention on May 6, 7, 8 and 9 at Louisville, Ky., with headquarters at the Kentucky hotel. The executive committee comprised of members of the Louisville association includes M. J. Chagnard, chairman; C. J. Redmon, vice chairman; O. C. Kraus; W. C. Gibson, financial secretary and F. A. Clegg, ex-officio. Mr. Clegg is one of the oldest and most active and energetic members of the Louisville organization.

◆

Pennsylvania Association to Hold Mid-Winter Meeting

The Pennsylvania State Association of Master Plumbers will hold a mid-winter meeting on January 20, 1931, at the Yorktowne hotel, York, Pa. At the annual convention of the Pennsylvania association in 1930 it was decided to hold such a meeting for the purpose of transacting business matters to make plans for an increase in the association's membership. Business conditions in the industry will be discussed and a number of prominent speakers are to appear on the program. Dinner will be served in the evening and master plumbers from all over the state are invited to attend the meeting.

New York State Convention Set for April 14-15

The New York State Association of Master Plumbers will hold its annual convention at Utica, N. Y., April 14 and 15, 1931, according to word just received from W. Edmund Stradling of Utica, president of the organization. The executive board of the state body met recently to discuss plans for the forthcoming convention and at this meeting the above dates were decided on.

W. Edmund Stradling

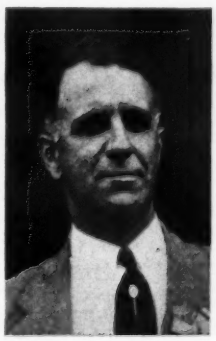
William Wolff of Brooklyn is vice president of the association, Raymond L. Ehrsam of Utica, financial-recording secretary, and John J. Dixon of Brooklyn, treasurer. William F. Cassidy of Albany is serving as chairman of the legislative committee.

The delegates-at-large are: Zone 1, John F. Rogers of Flushing; Zone 2, Fred Schmalstich of Bronx; Zone 3, Joseph O. Stapf of Albany; Zone 4, Charles J. Nagle of Herkimer; Zone 5, Charles H. Hakes of Binghampton; Zone 6, James L. Baker of Buffalo.

Members of the Conference Committee, N. A. M. P.

Sam A. Rice, Oklahoma City, Okla.

Rupert J. Weber, Chicago



Martin Utz, Rochester, N. Y., chairman

C. F. Troutwine, York, Pa.

John L. Zehnder, Louisville, Ky.

Directors of H. & P. C. N. A. to Meet

The board of directors of the Heating and Piping Contractors National Association plan to meet January 26 at the William Penn hotel, Pittsburgh, Pa. The board is composed of the following: Walter Klie of Cleveland, chairman, R. C. Beverley of Richmond, J. L. DeNeille of St. Louis, C. N. Gilley of San Francisco, H. M. Hart of Chicago, J. S. Jung of Milwaukee, J. A. Kiesling of Houston, J. E. McGinness of Pittsburgh, H. A. Snow of Boston, R. L. Spitzley of Detroit, R. D. Williams of New York City and J. H. Zink of Baltimore.

◆

Program Announced for Wisconsin Apprenticeship Conference

The annual statewide conference for the promotion of educational opportunities in the plumbing and heating industry of Wisconsin, will be held at Milwaukee on January 12. The meetings will take place at the New Pfister hotel, and the conference will be under the auspices of the Wisconsin state board of vocational education, the state industrial commission and the state board of health.

The conference will be in charge of E. E. Gunn, Jr., assistant state director of vocational education, assisted by Walter Simon, supervisor of apprenticeship for the industrial commission, and Frank R. King, state plumbing and domestic sanitary engineer.

The program follows:

9:30, A. M.—Opening Address: George P. Hambrecht, Director, Wisconsin State Board of Vocational Education.

9:45 A. M.—Relation Between Master and Apprentice: Voyta Wrabetz, Member Industrial Commission.

10:15 A. M.—Reports by Plumbing Instructors and Discussion of Reports: F. O. Maeder, M. M. Hanson, Henry Pommerenck, G. W. Farndale, H. C. Miller, A. J. Matthais.

1:30 P. M.—Present Situation in Plumbing Apprenticeship: Walter Simon, Supervisor of Apprenticeship.

2:00 P. M.—Developments in Modern Plumbing Which Tend to Increase Educational Needs: Peter King, Secretary Wisconsin Master Plumbers' Association.

2:30 P. M.—Needs of the Trade from the Viewpoint of a Practical Plumber: George F. Reeke, Master Plumber, Green Bay; Peter T. Schoemann, Journeyman Plumber, Milwaukee.

3:30 P. M.—Possibilities in Extending the Wisconsin Plan of Vocational School Instruction for the Plumbing Industry: Frank R. King, State Plumbing and Domestic Sanitary Engineer.

Discussion by: F. D. Branson, Master Plumber, LaCrosse.

◆

H. & P. C. to Repeat Business Study

Meeting in New York City on December 18, the trade promotion committee of the Heating and Piping Contractors National Association decided upon two major lines of activity. It was voted to repeat, through a questionnaire to be mailed to each member, a business survey similar to the one offered at the last annual meeting. The second proposed project has to do with a merchandising program and involves compiling the experiences of members who have been successful in their selling efforts.

Howard E. Crook of Baltimore, chairman of the committee, presided at the meeting which was attended by B. Y. Kinzey of Cleveland, Frank E. Moran of Chicago, Herbert A. Snow of Boston and Joseph C. Fitts, secretary of the association.

Manhattan Association Moves Offices

The Manhattan Association of Master Plumbers will formally open its new offices at 136 East 30th street, New York City, on January 10. The board of trustees are: Joseph F. Heck, chairman of the association, William Wallis, John D. Cooley, David Deigan, Richard Anderson and Fergus M. McLoughlin, past president of the New York State Master Plumbers Association. Mr. Deigan was in charge of the remodeling of the building which is known as the 136 East 30th Street Corp.

◆

Florida Selects Convention Dates

The Florida State Association of Master Plumbers and Heating Dealers, Inc., will hold its annual convention at West Palm Beach on May 4 and 5, 1931. James A. Quinn of Miami is chairman of the convention committee. The officers of the Florida state association are Harry Pepper of Jacksonville, president; Lee Phillips of Lakeland, vice president; Robert E. Engstrom of Jacksonville, treasurer.

The district vice presidents of the association are: H. Spencer Fromberger of Daytona Beach, Foster Fanning of Winter Park, Henry Griggs of Bradenton, and James A. Quinn of Miami.

◆

Progressive Association of Cleveland Elects Officers

The Progressive Association of East Side Master Plumbers, Cleveland, Ohio, met on December 17 to elect officers for the ensuing year. The newly elected officers assumed office at a special meeting held on January 7, which was attended by the wives of the members. The following will serve the East Side association during the coming year: H. E. Fagin, president; J. W. Hensick, vice president; George Sullivan, secretary (re-elected); George Wehrle, treasurer; Fred Hausman, sergeant-at-arms.

The board of directors will consist of Mark Stromberg, George Wehrle, Thomas Reid and the president and vice president.

◆

Oklahoma City Masters Elect Officers

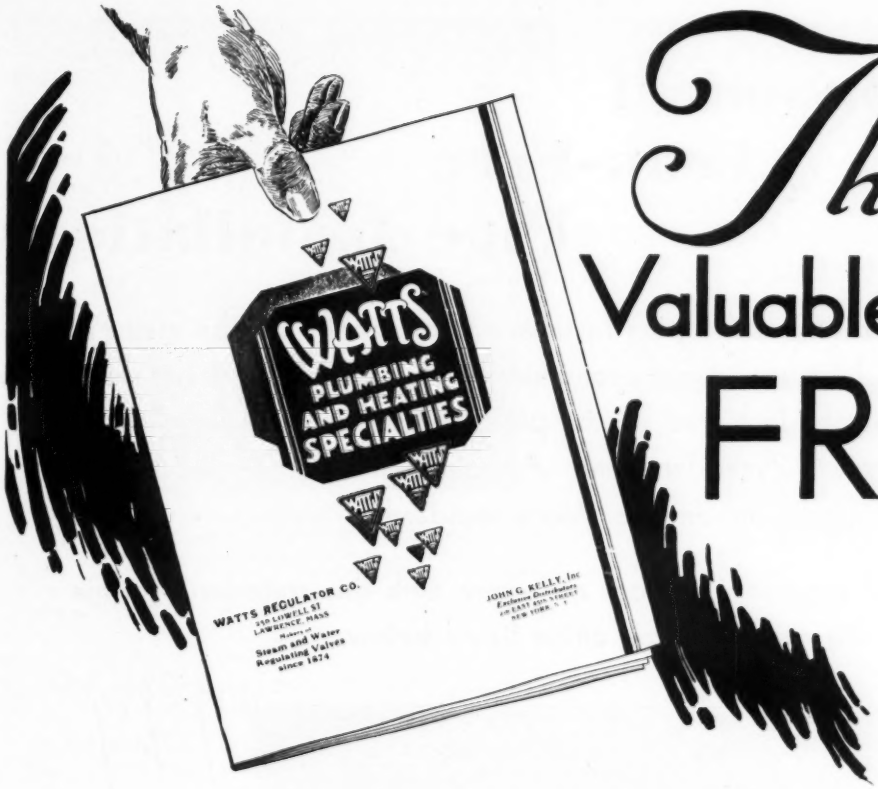
The Oklahoma City Master Plumbers' Association, Oklahoma City, Okla., at its regular meeting on December 15 elected the following officers for the ensuing year: George M. Flanagan, president; S. G. Russell, vice president; and Edward A. Rice, secretary-treasurer.

The board of directors will consist of George M. Flanagan, Henry F. Hanson, Roy Patton, B. B. Russell and John McDonald. Those elected to the board of trustees were Emil Radek, Ralph Morris and John Volz. "Bill" Damon is secretary of the association.

◆

Richmond, Va., Masters Elect Officers

At the annual meeting of the Master Plumbers and Heating Association of Richmond, Va., the following officers and trustees were elected for the fiscal year, beginning in February: H. B. Johnson, president; W. G. Winter, vice president; J. Stuart Graham, Secretary-treasurer; T. A. Talley, sergeant-at-arms. The trustees elected were E. G. Harris, H. A. Carter and H. G. Longworth. The new officers and trustees will be installed at the February meeting of the association.



This Valuable Book FREE!

THIS valuable, interest-compelling book will be sent absolutely without charge or obligation on your part.

It tells, in plain language, how contractors can install heating units quicker and at less cost for labor. Points out how contractors can eliminate night calls to fix a relief valve on a range boiler that has opened and is spouting water. Explains how Relief Valves can be reset in field for different pressures without using a pressure gauge, etc., etc.

This book is a veritable encyclopedia on the subject of water and steam regulating devices. No matter whether you are a contractor or a plumber's helper, you'll find this book as instructive as a text book.

The edition is limited. So write at once if you wish a copy—or simply mail the coupon.

WATTS REGULATOR COMPANY

Makers of Water and Steam Regulating Devices Since 1874

249 Lowell Street Lawrence, Massachusetts

John G. Kelly, Inc., U. S. Sales Associates, 210 East 45th Street, New York, N. Y.

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Without obligating me in any way, kindly send a free copy of your book "Plumbing and Heating Specialties."

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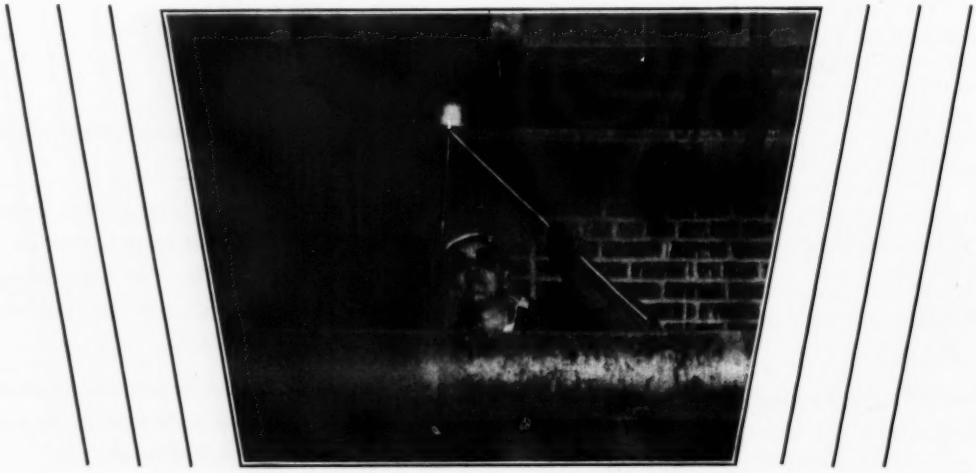
Quick Economical Leak-Free Pipe Installations

The majority of heating and piping installations or repairs can be made more quickly—in the long run more economically—and with the assurance of joints as permanently leak-free as the pipe itself if oxyacetylene welded with Airco Oxygen, Acetylene and Airco-Davis-Bournonville torches and accessories used according to Airco standards.

If you ever find anyone who does not agree with this statement, get his story and ask the nearest Airco office listed below.



AIR REDUCTION SALES COMPANY

Lincoln Building, East 42nd Street, New York

Airco Oxygen—Airco Acetylene—Airco-Davis-Bournonville Welding and Cutting Apparatus—Supplies—Airco National Carbide

AIRCO OFFICES

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Bettendorf, Ia.
Birmingham
Boston
Buffalo
Charlotte
Chicago
Cincinnati
Cleveland
Dayton
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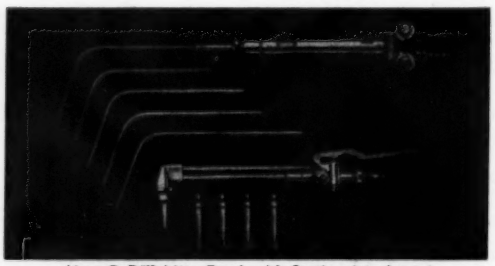
Jersey City
Kansas City
Los Angeles
Louisville
Milwaukee
Minneapolis



Airco-D-B Welding Torch with Cutting Attachment

AIRCO OFFICES

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Philadelphia
Pittsburgh
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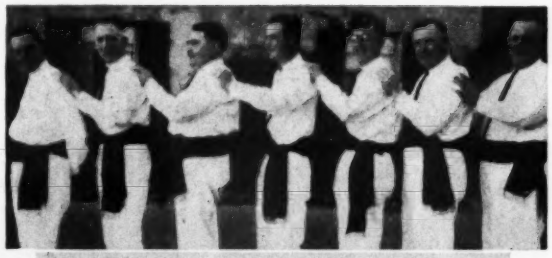
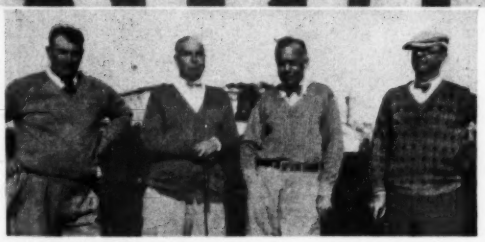
San Francisco
Seattle
Shreveport, La.
St. Louis
Wheeling
Wichita, Kan.
Represented in Texas by Magnolia Airco Gas Products Co., Houston, Beaumont and San Antonio.





In the top picture are members of the entertainment committee at the December tournament and Christmas party of the Plumbing and Heating Club of San Francisco: Robert Allmon, W. A. Rowe, Hal Sales, W. H. Rainwater, W. Ensheimer, J. J. McLeod and Morris Greenberg. Lower picture: D. L. O'Hair, W. A. Taylor, R. M. Clark and B. F. Blair

Golf and Banquet Feature P. and H. Club Christmas Party

An afternoon in Scotland and an evening in Hawaii! This, in effect, was the program enjoyed by the members and guests of the Plumbing and Heating Club of San Francisco (Calif.) and the Bay Cities, when close to two hundred and twenty-five representatives of the industry gathered at the Lake Merced Golf and Country club, December 19.

In addition to having one of the four finest professionally-rated courses on the Pacific Coast, the Lake Merced club offers exceptionally attractive, commodious quarters for holding banquets. With such facilities, plus ideal golf weather, Robert Allmon, chairman of the golf committee, began sending out foursomes early. Altogether there were seventeen foursomes taking part in the tournament. Although conditions were right for some good shooting, only six men broke 100 in Division A, two in B, and none in C nor D. Benjamin F. Blair accumulated the honors in A class with a 94-18-76 score, Herman Lawson in the B group with a 97-22-75, H. K. Browning in the C Division with a 101-28-73 card, and Frank Mosher in D class with a score of 102-32-70. For the benefit of the guests, the committee put on a blind bogey contest which was won by B. O. Brace.

At 6:30 the party sat down to a delicious turkey dinner which was enlivened by community singing and impromptu musical numbers. At the conclusion of dinner the banquet hall was vacated long enough to remove the tables and rearrange the chairs in preparation for the musical extravaganza—"A Night in Hawaii." One entire end of the big room was turned into a typical Polynesian bower, with a roof thatched of banana leaves and bunches of the fruit hung to the backdrop. A group of ten professional cabaret entertainers from San Francisco danced and sang their way through the program in true South Sea fashion.

Commenting upon the attendance at this affair, which was also the most popular tournament in the club's his-

A NEW addition to our line at a LOWER PRICE

Plumbers!

Just the furnace you've been waiting for!

A sturdy furnace that will give years of satisfaction and service. Substantial wide base, welded bottom, all connections brazed. Drip cup combined with overflow saucer and one piece pressed steel hood. A new low price—just the furnace for the busy plumber.

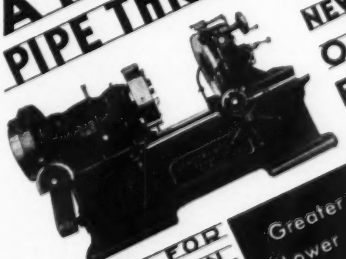
This new addition to our line is built to standard Dreadnaught specifications. The burner (patented) is especially designed for fast pre-heating and generating purposes. Constructed for "service with safety."

P. WALL MFG. SUPPLY COMPANY
3126 Preble Ave., Pittsburgh, Pa.

WALL DREADNAUGHT
FURNACES AND
BLOW TORCHES

WALL SUPERIOR PRODUCTS

Announcing
A REVOLUTIONARY PIPE THREADING MACHINE
INTRODUCING ··· A NEW CONCEPTION OF ····· SPEED EFFICIENCY ECONOMY

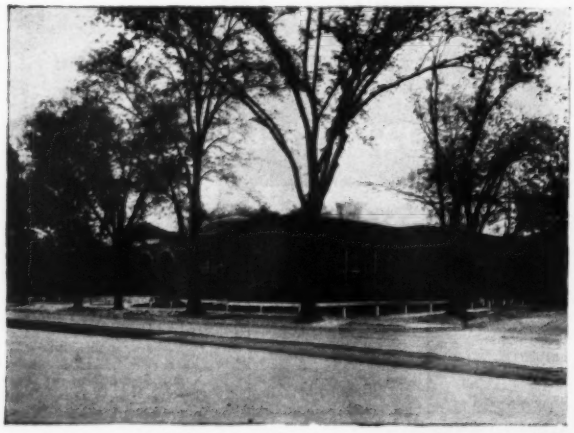


Greater Production at Lower Cost than was ever before possible.

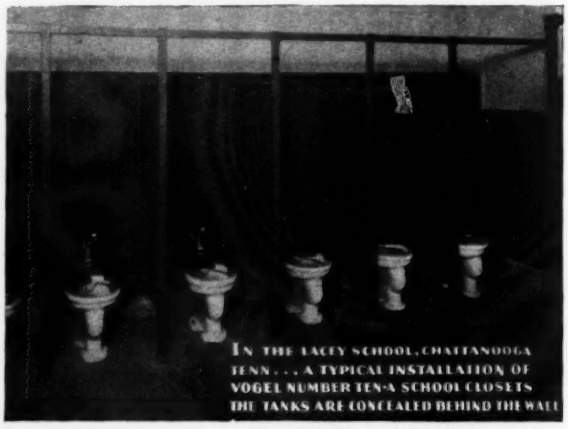
WRITE FOR BULLETIN A

Jarecki
MANUFACTURING COMPANY
ERIE, PA., U. S. A

There are always plenty of opportunities to make jobs and profits for yourself pushing the VOGEL *line*



The Washington School, Centralia, Ill., where Vogel Number Ten-A's have been installed.

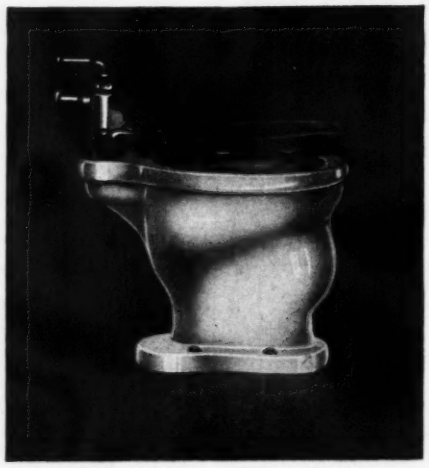

IN THE LACEY SCHOOL, CHATTANOOGA TENN. . . A TYPICAL INSTALLATION OF VOGEL NUMBER TEN-A SCHOOL CLOSETS THE TANKS ARE CONCEALED BEHIND THE WALL

Architect William Crutchfield. Plumbing Contractor Rubin Harris, Bratnerd Plumbing Co.

IN the United States there are 200,000 industrial establishments requiring extensive toilet facilities for employees.

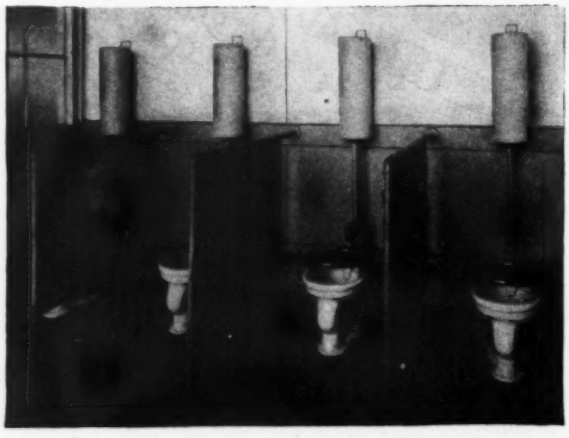
These industrial plants should have the same facilities as office buildings, namely, closets which, because of their appearance, receive better care from employees, and do not invite abuse. This can be accomplished by the installation of Vogel Number Ten or Ten-A Closets. They will last for years without the need for repairs, and have the appearance and looks of the most expensive closets. They are furnished with a glistening white china bowl, hardwood or composition seat, and galvanized pressure tank. The valve is heavy, non-porous metal—and its few moving parts are made of high tension bronze, noted for its resistance to wear.

Because they have proved that they will give years and years of service without even a washer being renewed, Vogel Number Ten and Ten-A Closets are the ideal closets for installation in plants, factories, schools and institutions.

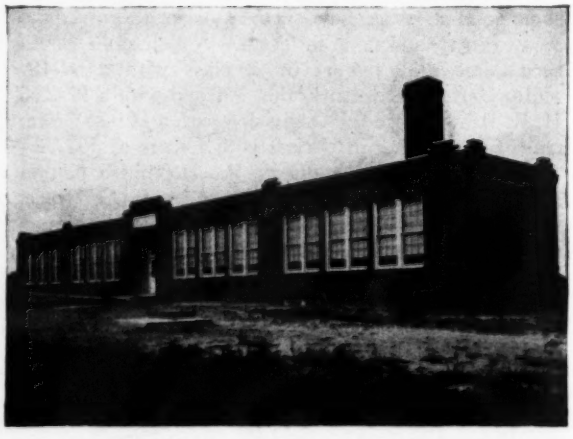


Vogel Number Ten-A Seat Action Closet Combination, with tank, concealed.

A typical installation of Vogel Number Tens in the plant of Pusey & Jones, Wilmington, Del.



The Minquidale School in Wilmington, Del., in which Vogel Number Tens have been installed.



VOGEL *Products*

Only VOGEL (PATENTED) S Can Beat COLDIE *and* FROSTIE

Coldie and Frostie
The Cold Test Twins,
Are right on the job
As the New Year begins.

We have to give credit
To these two guys,
For the way that they work,
And the way each one tries.

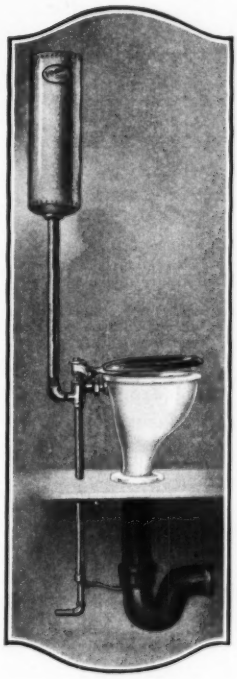
To crack Vogel Closets
And Hydrants as well
But here is the story
We're glad to tell.

They've never succeeded
For Vogels won't freeze;
And at zero or less
They still work with ease.

The VOGEL Number One Frost-Proof Closet is the Stand-by of the VOGEL Line

More than 500,000 have been installed

THEY have proved their dependability where use is hardest. Mines, mill villages, comfort stations, where closets are exposed to freezing temperatures, are using the Vogel Number One. They have many features not usually found in frost-proof closets. For instance, the hopper is enameled inside with an enameled rim; the seat is reinforced hardwood, and the pressure tank is galvanized. And each installation of Vogel Frost-Proofs is profitable for you because when you install them they operate satisfactorily, and there are no back calls for adjustments to cut down your profits.

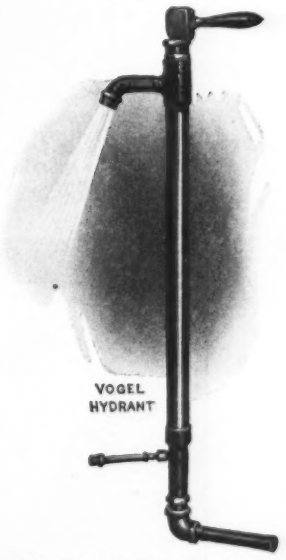


NUMBER ONE VOGEL FROST-PROOF CLOSET

Think of the millions of dollars profit plumbers have already made on these two products alone

THE VOGEL FROST-PROOF HYDRANT is sweeping the country. People are beginning to realize the convenience and service they get from the installation of one of these hydrants. A supply of water outside, all winter long—no matter how cold.

They are being installed in service stations, unheated garages, private and public, on large estates, in railroad yards, in industrial plants, in mines, and many other places. And with our advertising we are making new customers for you every day. The Vogel line from beginning to end is profitable. So remember there are always plenty of jobs and plenty of profits for you if you push the Vogel line.



VOGEL FROST-PROOF HYDRANT

Don't Neglect This Market

JOSEPH A. VOGEL COMPANY

Wilmington, Delaware **St. Louis, Mo.**

See inside front page and inside back page for other Vogel advertisements

VOGEL (PATENTED) *Frost-Proof* Products

GO AFTER REPLACEMENT BUSINESS

for 1931 T/N profits

T/N equipped home of E. E. Gutting, Topeka, Kansas. Contractor, C. L. Smalley, Plumbing, Patterson & Co. Jobber, Chandler Pump & Supply Co.

BUSINESS slack? Sell old home owners on bringing their bathrooms up-to-date as the first step in modernizing. Home owners are quick to see the superiority of the T/N. Its simple, modern design and quietness appeal to them. You can offer the T/N in colors, too.

Two connections and T/N is installed

Two simple connections and universal roughing measurements. T/N fits easily under windows, in corners, under stairs. And a patented vent assures sanitation. Send for jobber's name.

ONE PIECE WATER CLOSET SILENT NON-OVERFLOW

Patented, Pat. Pend.

W. A. CASE & SON MFG. COMPANY

Established 1853

Dept. 611, 220 Delaware Avenue, Buffalo, N. Y.

T/N

ONE PIECE WATER CLOSET

tory, President J. V. Young pointed out this organization's usefulness in bringing together all of the branches of the plumbing and heating industry from a wide radius, representation being had from San Francisco, Oakland, Berkeley, Alameda, Richmond, Walnut Creek, San Mateo, Burlingame, Palo Alto, San Jose, and other communities.

The entertainment committee was headed by Robert Allmon as chairman, and W. H. Rainwater, J. J. McLeod, William A. Rowe, W. A. Taylor, Frank Mauzy, L. W. Sweeney, Morris Goldberg, D. W. Durant, Hal. Sales and W. Ensheimer. Elmer K. Ross was master of ceremonies.

Golf scores were as follows:

Class "A"

	G.	H.	N.		G.	H.	N.
Turner, W. J.	100	18	82	Wilson, H. P.	99	15	84
Taylor, W. A.	95	15	80	Anderson, C. C.	96	16	80
O'Hair, D. L.	94	14	80	Elliott, F. F.	92	11	81
Blair, B. F.	94	18	76	Allmon, R.	106	18	88
Young, J. V.	103	9	94	Rowe, W. A.	101	17	84

Class "B"

	G.	H.	N.		G.	H.	N.
Lawson, H.	97	22	75	Rainwater, W. H.	104	24	80
Gabbert, F. M.	108	22	86	McLeod, J. J.	98	20	78
Clark, R. M.	104	21	83	Greenberg, S.	110	23	87
Doerr, M.	108	24	84	Oelschlagel, F.	110	22	88
Leary, Thos.	101	21	80	Finch, H. W.	105	23	82
Greenberg, M.	107	21	86				

Class "C"

	G.	H.	N.		G.	H.	N.
Turner, D.	112	26	86	Browning, H. K.	101	28	73
Kraus, E. J.	107	27	80	Ceaser, C. F.	119	26	93
Higgins, Chas.	107	27	80	Forsythe, J. W.	106	26	80

Class "D"

	G.	H.	N.		G.	H.	N.
Drucker, C.	116	33	83	Mosher, F.	102	32	70
Martin, D.	138	36	102	Lane, Wm.	126	40	86
Olsen, R. P.	105	31	74				

Guests

Blackburn, B. R.	129	Nattkemper, E. L.	119
Brace, B. O.	122	Hook, F. M.	100
Millu, J. W.	117	Garthorne, C. E.	119
Brown, H.	103	Cochrane, L. H.	88
Hudson, R.	100	Leslie, L. J.	108
Hovgaard, I.	99	Cranston, C. A.	112
Lauder, H.	113	Callahan, A. M.	104
Montgomery, N. B.	110	MacDonald, H. H.	108
Harris, B. C.	105	Clements, Wm.	108
Reid, K. M.	108		

◆

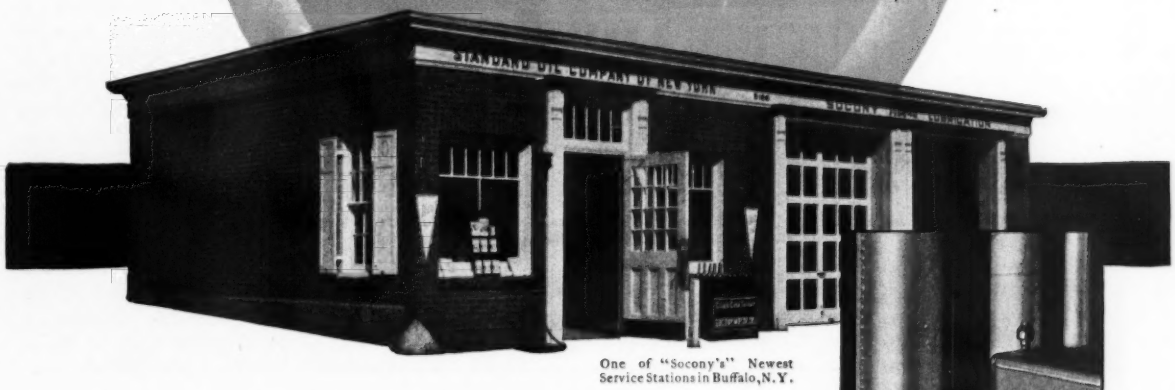
Instructors' Conference Held in Milwaukee

Members of the Milwaukee Master Plumbers Association and the Heating and Piping Contractors Milwaukee Association were represented at the Plumbing and Steam-Fitting Instructors' Conference, held in connection with the American Vocational Association convention at Milwaukee, Wis., December 11, 12 and 13. The meeting featured an open-forum discussion of practical problems relating to the plumbing industry.

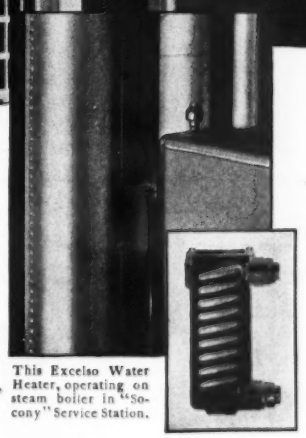
The plumbing and steam-fitting converence was held on Saturday morning, December 13, at the Milwaukee Vocational school, headquarters for the convention. The subject of welding and its importance in the plumbing industry was the principal topic, which Frank R. King, of the bureau of plumbing, Wisconsin State Board of Health, introduced.

John Shanahan, of Norfolk, Va., chairman of the apprenticeship committee of the Heating and Piping Contractors National Association, was scheduled to preside at the meeting, but was unable to be present. In his absence, Perry L. Ritchie, president of the National Association of Plumbing and Heating Instructors, acted as chairman.

GASOLINE SERVICE STATIONS, TOO, SAVE MONEY AND TROUBLE WITH EXCELSO INDIRECT WATER HEATERS



One of "Socony's" Newest Service Stations in Buffalo, N.Y.



This Excelso Water Heater, operating on steam boiler in "Socony" Service Station.

GASOLINE Service Stations from coast to coast have found EXCELSO the ideal, safe solution to their water-heating problems. It gives them an unlimited supply of hot water for all tap purposes—it operates on their heating plants, eliminating the cost and care entailed in separate water-heating equipment—it is safe, since its fireless operation removes all danger of flames igniting oil or gasoline.

They know that as long as the boiler is being fired, they'll have hot water when they need it—and as much as they need. They know that EXCELSO will operate year after year without getting out of order or requiring repairs—that it's the most satisfactory, most economical means there is of supplying hot water in gasoline stations and garages, just as it is in homes, apartments, hotels, office buildings, hospitals and everywhere else that there is steam or vapor heating.

Plumbing and heating contractors know that EXCELSO offers them an opportunity for extra work and extra profits wherever they find a steam or vapor heating plant, whether in new buildings or old.

Write for the EXCELSO *profit story.*

Stocked and sold by leading wholesalers and boiler and radiator manufacturers everywhere

EXCELSO PRODUCTS CORPORATION
57 Clyde Avenue Buffalo, N. Y.

EXCELSO INDIRECT WATER HEATERS

SIZES TO HEAT WATER FOR ONE FAMILY OR ONE HUNDRED

The *NEW*

EXCELSO KLEARWAY VALVE
PATENT PENDING

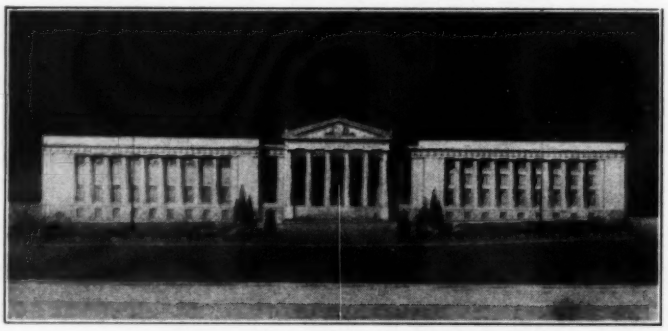
A Necessity on Every Hot Water Supply System . . .

A single unit which supplies two-way cleaning and safety draw-off for keeping tank, heater and feed lines free from rust, dirt and sediment.

Four Regional Management Conferences Scheduled in Kentucky and Tennessee

Four Regional Management Conferences will be held south of the Mason-Dixon line in January. The dates and places are as follows: Nashville, Tenn., January 14; Memphis, Tenn., January 15; Louisville, Ky., January 21; and Lexington, Ky., January 22.

This announcement is made by the Plumbing and Heating Industries Bureau following a trip through Kentucky, Tennessee, and Arkansas by Joseph G. Hildebrand, director of Regional Management Conferences, and Edward B. Kleine of Cincinnati, a member of the Board of Directors of the National Association of Master Plumbers.



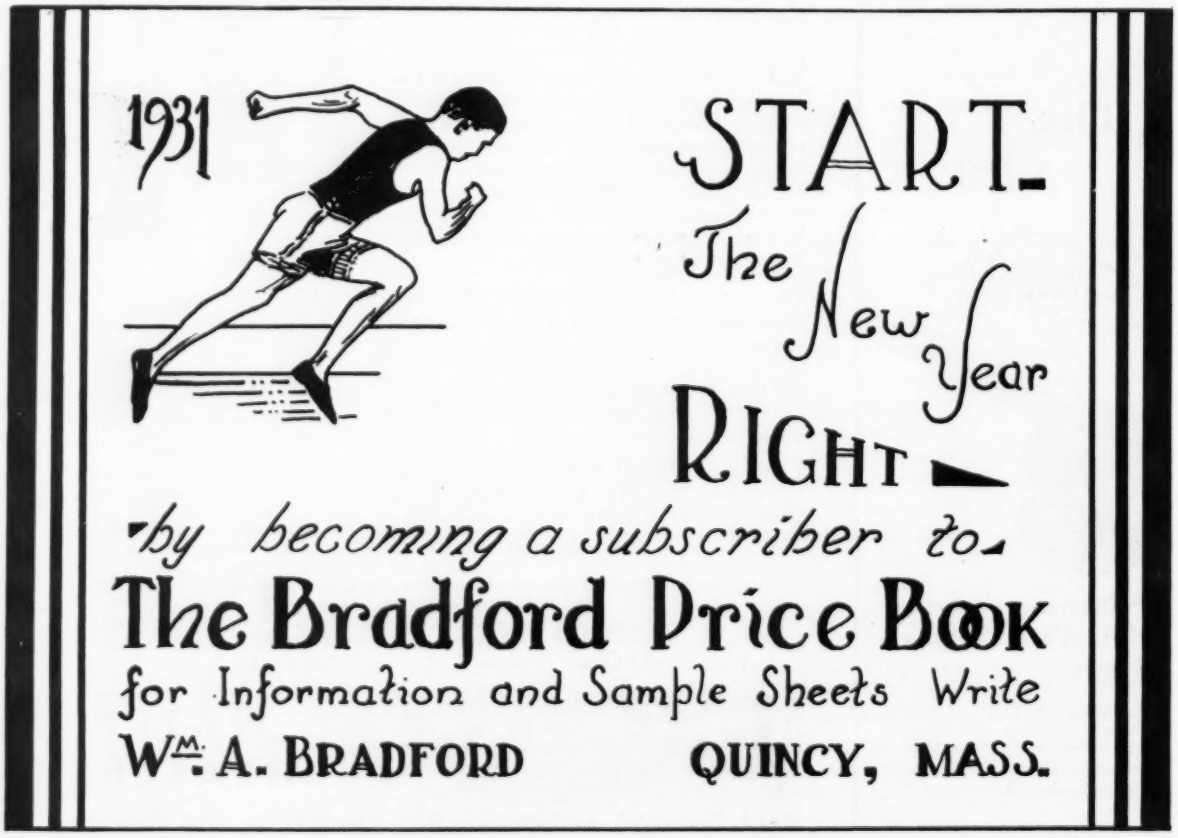
The Tennessee War Memorial, at Nashville, where Nashville Regional Management Conference is to be held

The announcement of the four conferences in the South brings the total number of Regional Management Conferences scheduled for January up to six. A typical Regional Management Conference was presented at the Presidents' and Secretaries' Conference at the Congress hotel, Chicago, on January 5, 6, and 7. Several sales demonstrations and a play will be given on the evening of January 20 at the annual convention of the Illinois Master Plumbers Association at Danville.

All of the meetings scheduled in Kentucky and Tennessee will be evening meetings, beginning with a dinner at 6 o'clock and the plays starting at 8 o'clock.

The Regional Management Conference in Nashville will be held under the auspices of the Nashville Master Plumbers Association. The chairman of the committee arranging for the conference is W. A. Roache, president of the Associated Master Plumbers of Tennessee. He is being assisted by R. L. Farrar, secretary of the state association. The banquet will be held in the Andrew Jackson hotel and the sales demonstrations in the auditorium of the Tennessee War Memorial.

The conference at Memphis on January 15 will be held under the auspices of the plumbing and heating industry of Memphis. Arrangements for the conference are being made by J. L. Peebles, secretary of the Memphis Master Plumbers Association, and George B. Richmond, secretary of the Heating and Piping Contractors Memphis Association. The meeting will be held at the Catholic Club of Mem-



phis. The cast presenting the plays in Memphis and Nashville will be organized from among the members of the plumbing and heating industry in Memphis.

The plays in Louisville and Lexington will be presented by the cast which gave the demonstrations at Cincinnati.

Arrangements for the Louisville meeting are being made by John L. Zehnder, president of the Kentucky Association of Master Plumbers, and John M. Wilbers, president of the Louisville Master Plumbers Association. Arrangements for the Lexington meeting on January 22 are in charge of H. J. Frantz and C. A. Matlack.

◆

Tri-City Development League Holds Holiday Meeting

The annual holiday surprise meeting of the Tri-City Plumbing and Heating Trade Development League was held at the Blackhawk hotel, Davenport, Ia., on December 17. Dinner was served to eighty-five members and guests.

President W. L. Stange dispensed with the business of the meeting and gave the time over to the educational committee and the entertainment committee.

The educational part of the meeting consisted of a talk by H. W. Taylor of Mueller Brass Co., Port Huron, Mich.

Announcement was made by the entertainment committee that the league's annual dinner-dance would probably be held late in January, 1931.

◆

Michigan Chapter Holds Annual Party

The Michigan Chapter of the American Society of Heating and Ventilating Engineers held its December 15th meeting at the Cadillac Athletic club, Detroit, with ninety members and guests in attendance.

Following a delightful turkey dinner, President E. E. Dubry called for a roll call and introduction of guests. Among the guests was Thomas P. Chester of Pittsburgh, who gave the Michigan members a cordial invitation to attend the national convention, which will be held in Pittsburgh in January.

The principal speaker of the evening was E. R. Shaw, Michigan representative of the U. S. Chamber of Commerce.

Mr. Shaw predicted that it would be many years before business conditions would reach the 1929 average, but he did think that by the middle of 1931 business conditions in this country would equal the average of business from 1925 to 1929. He indicated that the U. S. Chamber of Commerce national survey shows definitely that unnecessary restraint in buying of necessities is largely responsible for the delay in getting business back to normal.

Following Mr. Shaw's address, a discussion was participated in by William A. Rowe, Thomas Chester, Thomas Brown, John L. Fuller and L. L. McConachie.

After the regular business meeting the annual Keno party took place. This party is held each December and it is greatly enjoyed by the membership at large. This year's party was particularly successful. Among the gifts were—6 electric clocks, 17 turkeys ranging from 10 to 15 lbs. in weight, 5 geese, 15 ducks, 40 chickens and 30 other gifts.

Formal Black

An Enhancing Complement to Fine Interiors

HERE is a striking fountain. A Black Gem with the depth of glorious night and the sheen of brilliant stars. A play-toy for lights and shadows. In contrast or ensemble effects, its conspicuous beauty is an enhancing complement to the finest interiors. Century drinking fountains have scored a national success. From jet black to white; through a great range of color and in a score of exclusive designs their inherent beauty has been enthusiastically acclaimed.

And here is the twin of Beauty... Efficiency! Century Fountains are truly automatic. From 10 to 125 pounds pressure, these unique fountains maintain automatically, a normal wholesome drinking stream. Sudden splashing gushes of water have been definitely eliminated. The unsanitary inconvenient trickle is unknown. Each turn of the handle produces a clean, wholesome drink.

We ask you to investigate these fountains fully. Your inquiry will bring complete information.

CENTURY BRASS WORKS, *Inc.*
900 N. Illinois St. Belleville, Illinois

Century Sanitary Drinking Fountains

George H. Drake—

An Interview

Robert K. Doran gives his impression of the president of the National Association of Master Plumbers

GEORGE H. DRAKE impresses one. Physically? Yes. Reflecting upon his business accomplishments? Yes.

But what impresses one most is George Drake's honesty, his sincerity, his willingness to help others out of his vast store of experience. Talk to Mr. Drake for five minutes and you'll know what I mean. You'll gain this self-same impression yourself.

On a sparkling Buffalo morning I found myself at 218 Lexington avenue, George Drake's place of business. Mr. Drake told the writer the day before over the telephone to come along, and come early—say at 8:30 o'clock. Here was my first character clue. And like a real detective I wrote it down in my memory book in this fashion:

"Drake, George H., president of the National Association of Master Plumbers, believes and knows that the early bird catches the worm."

Arriving at "218" I saw a well-set-up plumbing and heating contractor's headquarters, showroom, offices, storerooms, and all. The center of Mr. Drake's activities for the past 24 years.

But this short article is to be a biography, so let's talk about the "man," and let's go back the road a spell.

George H. Drake was born at Lockport, N. Y., on August 28, 1874. His father was a plumber who passed away when young George was only 11 years old. His mother had two girls and himself to support so Master Drake got busy and got a job. Of course his thoughts naturally turned to plumbing and of course he got employment right away, with the firm of Cornell and Dunning.

After some little time, George started out on his "own hook." This was in 1892. He went to Niagara Falls and worked as a journeyman in that city and in neighboring Buffalo, until 1895. Then into business for himself at Niagara Falls in the spring of that year. Young Drake had looked over the Western New York field quite well and selected Niagara Falls as the scene of his future triumph.

Mr. Drake had a partner. At the time he visioned the partnership as the ideal plumbing and heating money-making arrangement. One man to take care of the actual work in the field, the other to see to office details in general. George Drake's father worked for many years in the capacity of partner, and so his son and heir naturally felt that he could profit best along partnership lines. But his experience at Niagara Falls, and later at Bradford, Pa., changed his views.

The Niagara Falls venture did not pan out very well, and the next year, 1896, found the youthful Drake working in territory a hundred-some miles to the south, in Bradford. Here he went in response to a master plumber's "S.O.S." The latter needed a good hand,

and George Drake was invited to apply. He got the job.

The following year found himself and a partner in their own business. Drake's dream had come true at last. A real partnership and real success in the offing. Each man had the munificent sum of $150 on which to base his plumbing and heating success.

Dame Fortune didn't smile too kindly on the young Bradford business men. For the second time George Drake's partnership failed to materialize satisfactorily. In a year's time Drake was "going it" alone. And he has been alone ever since!

Mr. Drake stayed in Bradford until 1907. He worked up a good business, made and saved money. A big opportunity presented itself. There was an established business for sale in Buffalo—the business of Henry J. Wood.

Mr. Drake had had his eyes on Wood's operations for some time. He made a flying trip to Buffalo, looked over the ground and made a purchase.

The Wood business was located at 220 Lexington avenue. Later, Mr. Drake bought the property next door, his present address. This property, a large single house, was remodeled, and if you could have accompanied me on my visit to George H. Drake's plumbing and heating headquarters on the sparkling October morning mentioned earlier in this article, you would have discovered how neatly the owner presents his business in a "class," semi-domestic setting.

Mr. Drake has a wife, four children and two grandchildren. One daughter is married. The eldest son, George Marshall Drake, is in business with his father.

"George H." likes all sports, with a leaning towards fishing. He's right at home up in Canada or out on Lake Erie with ye old fishing tackle. George played golf once, and that's saying something. He has a summer home along the Lake Erie shore, at Lotus Bay. He enjoys detective stories.

The subject of this thumb-nail biography is a member of the Buffalo Athletic Club, Buffalo Builders' Exchange, the Buffalo Club, Masons, I. O. O. F., besides being worthy president of the National Association of Master Plumbers.

Mr. Drake's forbears came from Scotland.

Mr. Drake's ideal association member was the late Alfred C. Eynon.

While handling hundreds of plumbing and heating contracts, large and small, his most interesting job was the heating and plumbing of the modern portion of old fort at Fort Niagara, built by the explorer, La Salle, years ago.

These are just some of the high spots in the life of George H. Drake. There are many others, but I've got to stop somewhere!

◆

Orange Association Elects Officers

Members of the Orange Master Plumbers' Association, Orange, N. J., met recently and elected the following officers for the ensuing year: George Buggelin, president; A. G. Trapper, vice president; Joseph Berg, secretary; Harry G. Kraus, treasurer; Albert Foltzer, Sergeant-at-arms; Frederick Bogart, trustee for 3-year term. The above officers were installed at a meeting on January 7.

L.F.C. HIGHEST QUALITY

PROMPT SERVICE L.F.C.

Standard Flanged Elbows for 125 to 250 Pound Pressure.

BIG STOCKS--! QUICK SHIPMENTS!

THE engineer or contractor who depend upon "Lynchburg Service" have tremendous stocks of Cast Iron Pipe, Fittings, and Flanges in all standard sizes at his command—ready for immediate shipment.

"Lynchburg Service" steps up—and makes your piping jobs more profitable.

Wire Lynchburg—TODAY—for quick estimates.

Bell and Spigot Pipe and Fittings from 4" to 48"

Cast Iron Flanged Pipe from 3" to 84"

Cast Iron Flanged Fittings and Flanges from 1" to 84"

LYNCHBURG FOUNDRY COMPANY

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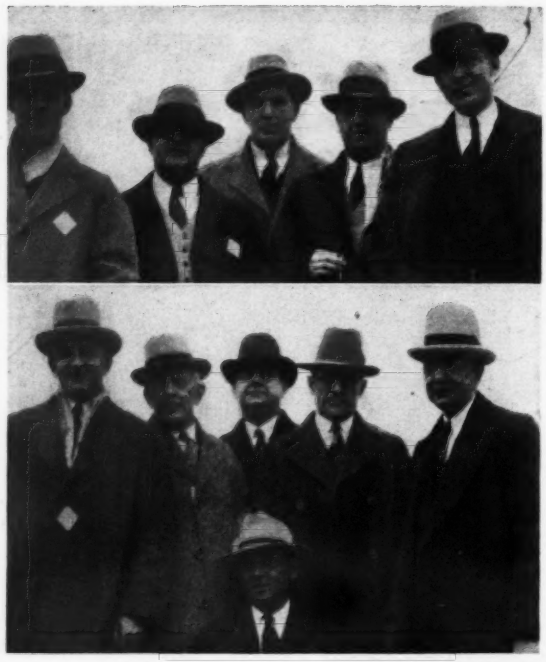

Top row: E. M. Bairs, American Radiator Co.; Chas. H. Wagner, Crane Co.; A. A. Delo, Consolidated Gas & Electric Co.; E. W. Skoglum, U. S. Radiator Corp.; D. H. Waddington, American Gas Products Co.
Bottom row: Gus Wirth; Samuel E. Houck; Francis C. Dorsey; Frank Knell, representing the board of directors, Maryland Plumbers' Association; August Maltham, president of that body. Kneeling: John W. Clark, secretary of Maryland association. Photos taken at recent oyster roast.

Maryland Association Gives Oyster Roast

The Association of Master Plumbers of the State of Maryland, Inc., held its first annual oyster roast at Heintzeman's Cottage Grove Beach on Sunday, December 14.

Passing all expectations, approximately four hundred people were present to partake of Maryland's famous seafood and enjoy the music and entertainment offered throughout the day.

Under the chairmanship of Charles Wachsmuth, the entertainment committee prepared one of the most elaborate and amusing affairs held by the association, and were well repaid by the response of the large attendance, which included the supply houses, distributors, and manufacturers of the trade, as well as representatives from the Washington, D. C., association headed by Frank Bentley, its president, R. J. Barrett, a director of the National Association of Master Plumbers, and members of the Wilmington, Del., association with W. D. Graham, one of their officers. A number of city officials and the vocational school instructors were also present.

Fifteen barrels of oysters were consumed in the form of stews, steamed, fritters and raw on the half-shell, and eight shuckers were kept busy supplying all wants.

A negro jazz band supplied the music, while a quartet of singers entertained with many songs.

The entertainment committee, under the chairmanship of Charles Wachsmuth, and including John W. Clark and Gus Wirth, were so well pleased with the success of the affair that another is planned for this winter.

• SEMLER SURE-FIT •

DRAINAGE FITTINGS

Semler SURE-FIT Drainage Fittings are designed to give good appearance. But this feature alone is merely a superficial reason for buying them. Behind their sturdy, attractive design is a specialized organization that knows how to produce fittings and that knows the most exacting needs of the trade and accordingly can guarantee the kind of fittings you would want to recommend.

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SEMLER
STEAM FLANGED SPRINKLER DRAINAGE

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SURE FIT FITTINGS

Montclair Association Plans Annual Banquet

The Master Plumbers' Association of Montclair, Bloomfield, Verona and Vicinity (N. J.) is making plans for its annual banquet, which is to be held toward the latter part of January, according to word recently received from Joseph A. Durr. The newly elected officers of the association will be installed at the regular January meeting, the installation ceremonies to be preceded by a supper at the Coffee Pot Inn.

Mr. Durr is the only living charter member of the Montclair association. During the period of his membership he has held at one time or another every office in the association. His last official capacity was secretary, which office he resigned about two years ago.

◆

New Secretary for Oklahoma State Association

William Damon recently assumed the duties of secretary of the State Association of Master Plumbers of Oklahoma. He will also be secretary for the Oklahoma City Association of Master Plumbers. Mr. Damon has acted as field man for the Oklahoma association for some time.

◆

California Inspectors Hold Annual Convention

The Plumbing Inspectors Association of California met at Fresno on December 5 and 6 for its annual convention. The meetings were held in the Hotel Fresno, with president J. B. Davis presiding. Inspectors from some twenty-five cities attended the convention. The members voted to hold their next convention in Sacramento, on the first Friday and Saturday of October, 1931.

After considerable discussion it was voted that a code committee be appointed to draw up a uniform code, based on the United States Department of Commerce Recommended Minimum Requirements for Plumbing. Fred N. Johnson and Charles B. Bailey were appointed to draw up a skeleton code and submit it to the executive committee.

At the suggestion of the legislative committee it was voted to seek a change in the state housing act so as to make it compulsory for the proper installation and venting of all gas heating appliances. The legislative committee also suggested that no member of the association endorse any appliance, fixture or material until the same had been endorsed by the association. The members also voted for the establishment of an association library, to be in charge of the secretary. Each member is to furnish the secretary with codes, amendments and other such data that may be of service to the members as a whole.

Gay R. Hilliker of Fresno was elected president of the association for the ensuing year, succeeding J. B. Davis. Fred N. Johnson of San Jose was elected vice president of the northern division; and Charles R. Bailey of Los Angeles was elected vice president of the southern division. Stephen I. Smoot was appointed secretary-treasurer.

President Davis' report showed a year of progress. He stated that there were now thirty active, three advisory, four honorary and seven associated memberships, making a total of forty members. As many of the mem-

The new Sanymetal Unit Panel Partition has interesting erection advantages described in Bulletin No. 47. Write for it today.

Add This Toilet Partition Business to Your Volume

TODAY progressive plumbing contractors are taking advantage of every opportunity to figure on steel toilet and shower compartments. Often you can arrange to have them included in the plumbing estimate. The result is more business and more profit for you.

In these days of mounting overhead, with *profit* harder to make, every extra dollar is important. You can't afford to overlook this suggestion.

And — when you're figuring steel partitions — don't forget that The Sanymetal Products Company have been headquarters for partition values for fifteen years. We shall be glad to cooperate fully with substantial plumbing concerns. Write for details.

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Sanymetal
STEEL TOILET & SHOWER
PARTITIONS

Two of the 16 Young Unit Heaters in the S. C. Johnson & Son Co.'s floor-wax plant at Racine, Wis., equipped with Sarco "FT-1" Float and Thermostatic Traps.
Architects:
Lockwood, Greene & Co., Racine
Contractors:
Advance Heating Co., Racine

Compact and light enough to be supported directly on the piping. Due to its special design is easily installed. "FT-1" size has two inlet and two discharge connections—¾", 1", or 1¼". "FT-2" size —1½" or 2"—has only one inlet and one outlet. Connections can be bushed to required pipe size.

Correct Trapping

is the secret of successful Unit Heater Installations—

If you are having trouble with the operation of unit heaters, you can probably trace the cause to the steam traps used. For ordinary traps cannot handle condensate fast enough on such jobs.

The Sarco "FT" Float and Thermostatic Steam Trap was designed especially to handle the heavy condensate from unit heaters, large pipe coils, and stacks.

We recommend Sarco "FT" Traps for use also in dripping ends of steam mains, vento heater stacks, hot water tanks, drip lines, and any point in a steam system where condensate is unusually heavy or comes in sudden rushes.

Service details of applications, showing our recommendations diagrammatically, are available on request.

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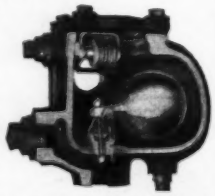
SARCO
FLOAT AND
THERMOSTATIC
STEAM TRAP



Thermostatic valve prevents air binding. Float mechanism is simple and sure. Valve closing from below the seat leaves free path for dirt and scale, and makes for large capacity.

bers were paying their own way to the convention, he said that he hoped this would be corrected in the near future. He also hoped to see in the future the establishment of a testing bureau where tests can be made on materials, fixtures and appliances, before they are placed on the market.

Secretary Stephen I. Smoot's report included a short history of the association and a financial report. The auditing committee, consisting of Chas. B. Bailey and Guy R. Hilliker, approved the secretary's report.

Guy R. Hilliker, who served as vice president of the northern division during the past year, reported on the work accomplished in his territory. On February 6 and 7, 1930, in company with Fred W. High of Fresno, president of the State Association of Merchant Plumbers of California, a number of the northern cities were visited and several new members were secured. Three meetings were held in the northern territory during the year.

R. M. Starbuck, Jr., of Hartford, Conn., had prepared a paper for reading at the convention on suggestions for the betterment of plumbers and plumbing. In his paper, Mr. Starbuck said that the plumbing trade appears to have improved in every section of the country, but that a systematic method is needed whereby a young man can properly learn the trade. He made the following recommendations:

1. The licensing of both masters and journeymen after satisfactorily passing a fair but rigid examination.
2. The bonding of master plumbers.
3. A license fee of reasonable amount required of every master plumber.
4. Examination and approval of plumbing plans and specifications before the granting of a permit to do the work.
5. The collection of fees for the issuing of permits and for inspection service.
6. Testing of the plumbing system.

A paper by A. R. McGonegal, chief plumbing inspector of Washington, D. C., was read before the convention. The title of the paper was "The Plumbing Inspector and the People."

A. C. Shaver, research engineer, Soil Pipe Association, had prepared a paper for reading, entitled "The Plumbing Inspector's Duty to the Community He Serves and to the Country at Large." H. K. Browning, division manager, A. M. Byers Co., Pittsburgh, Pa., talked on pipe.

William C. Groeniger of Columbus, Ohio, consulting sanitary engineer, in a paper he had prepared for reading before the convention, said that prevention rather than cure is a reasonable, sensible public health measure. He pointed out that it requires about 200 technical sections to clearly specify detailed plumbing regulations.

Charles M. Swinnerton of Los Angeles, chairman of the legislative committee of the state association of master plumbers and a director of the National Association of Master Plumbers, addressed the convention delegates. Mr. Swinnerton remarked that the inspector is the servant of the public. He added that the master plumbers' association, like the inspectors' organization, realizes the need for a minimum state code in California.

MARKETS

BUSINESS REPORTS FROM LARGE JOBBING CENTERS

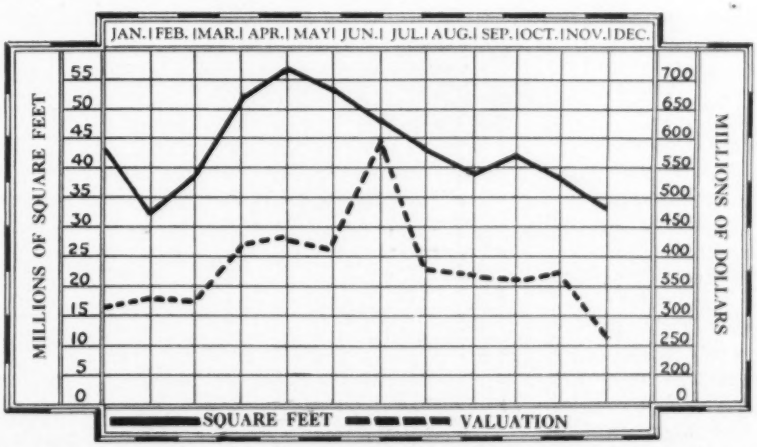
Prices Were Fair—Volume Was Lower

TAKING the industry as a whole, the volume of plumbing and heating material consumed in the twelve months of 1930 dropped off sharply from the total for the preceding year. The fact that 1929 was also a year of smaller volume when compared with the two or three preceding years serves only to further emphasize the extent to which the industry has suffered in the past two years. While final figures were not yet available at the time of going to press, a survey of the businesses of several hundred wholesalers of plumbing and heating supplies showed declines in dollars and cents from last year ranging from 5 to 47 per cent. In the majority of cases the drop from 1929 ranged from 10 to 30 per cent. Some jobbers reported business equal or better than that for 1929, but such instances were rare and in large part due to exceptional circumstances, such as large contracts for municipal, state or federal work.

A brighter side to the survey, however, is the fact that some jobbers were able to report a better percentage of profit compared with last year, while many others indicated that their percentage of profit was equal to or only slightly less than last year, even though their volumes were considerably less. In this respect, it should be pointed out, in order to properly emphasize this phase of business, that 1929 was also more satisfactory to sellers from the standpoint of percentage of profit than 1928. This condition naturally helped somewhat to counterbalance the year's reduced volume.

The majority of manufacturers entered the year with only moderate volumes of business on their books for shipment after their distributors had completed inventory-taking. Price advances by manufacturers of enameled ware and pottery early in the year brought many wholesalers into the market and shipments from sources turned sharply upward. An advance in soil pipe prices had the same effect. Except for several other similar instances where jobbers considered it good business to take advantage of low prices, the general run of orders during the year were regulated according to the near-at-hand requirements of wholesalers. Consequently, the majority of reports indicate that the latter are entering the year 1931 with stocks even lower than a year ago at this time. Repair and remodeling work, although not compensating for the reduced turnover resulting from lower construction figures, nevertheless accounted for an increasing proportion of the total involved.

According to reports of F. W. Dodge Corp., covering 37 states east of the Rocky Mountains, contracts for residential building—usually considered as the most important division of the construction field—declined 42.8 per cent in dollar value and 41.7 per cent in floor space area during the first eleven months of 1930. During this same period the total of all types of construction declined only 21.3 per cent and 35.6 per cent, respectively, from the levels of the previous year. While these figures clearly indicate that the residential group has undergone a far more drastic readjustment than the industry at large (due somewhat to the record levels of public works and utility construction), the definite flattening out of the decline in residential building exhibited during the past several months would seem to indicate that this division is rapidly approaching a bottom from which an eventual upward trend is inevitable. So sharply has this relationship between the residential division and the entire industry reversed itself that, whereas residential building



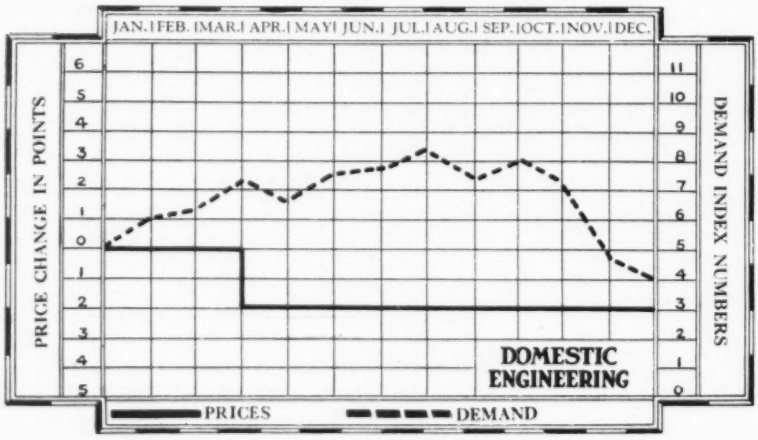
The above chart is based on figures compiled by F. W. Dodge Corp. and shows how construction contracts were awarded in the 37 eastern states in 1930

clearly led the downward trend earlier in the year, it is now quite as clearly serving to retard the decline of the industry as a whole. In November the floor area of new residential contracts marked a decline of only 11.8 per cent from the previous year, as compared with a recession of 35.1 per cent for the entire industry.

The Business Bulletin of the Cleveland Trust Company has this interesting viewpoint to offer: "The readjustments that start recovery on its way work themselves through in relatively uniform periods of time. Excess stocks of goods get worked off. Shortages develop. Idle hands seek employment. Business men and industrialists call on their reserves of initiative. Decreased costs of construction stimulate new building. These forces ferment silently and invisibly. Finally they become effective and apparent. They are at work now, and they will bring recovery from this depression, as they always have from former depressions."

Steel Pipe Had Fair Year

ON APRIL 1 mills issued new price cards reducing the price of steel pipe to their distributors two points. The change affected sizes from one to three inch, and was the first change in base prices since 1923. This accounts for the price reduction indicated on the chart. Actual figures are not available on the tonnage of steel pipe that moves into the plumbing and heating field, and, consequently, the "demand" line on the accompanying chart is necessarily based on information secured during the course of the year for our regular market reports. Shipments maintained a fairly steady pace, and, on the average, showed a rising tendency until the last quarter. Distributors' shipments were not sufficiently heavy at any given time as to warrant their committing themselves with mills for large quantities. Their racks, however, were generally well-balanced. Shipments from sources were ordinarily executed without delay and distributors experienced no embarrassment in the matter of making deliveries. The heating season accounted for some increase in consumer requirements, after which shipments declined gradually to the end of the year.

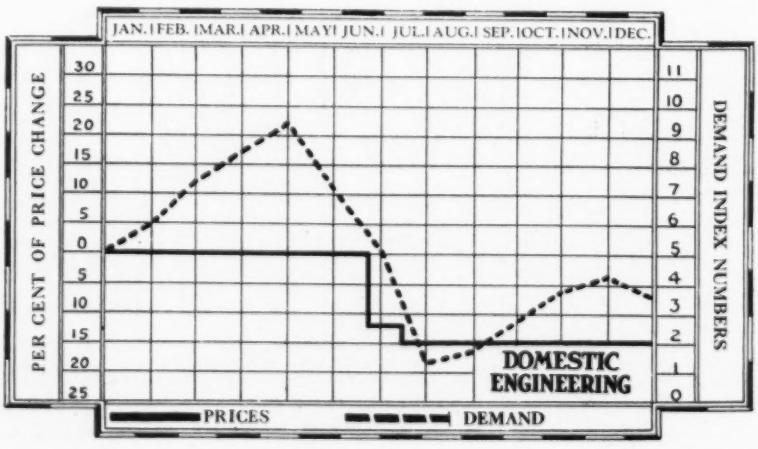

JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PRICE CHANGE IN POINTS
6 5 4 3 2 1 0 1 2 3 4 5
DEMAND INDEX NUMBERS
11 10 9 8 7 6 5 4 3 2 1 0
DOMESTIC ENGINEERING
PRICES
DEMAND

Consumption of Fittings Declined

ALTHOUGH definite figures on shipments of malleable, cast iron screwed, flanged and drainage fittings are not available, the "demand" line on the chart indicates quite accurately the general movement of these items during the year. The line is based on information gathered during the year for the regular DOMESTIC ENGINEERING market reports. These reports indicate that brass fittings followed a course that in general was very similar to the one on the chart.

The "price" line on the chart is representative only of black and galvanized drainage fittings. During the year two major changes were made in manufacturers' prices to wholesalers on drainage fittings. The first occurred late in June and the second took place toward the middle of July. Both represented reductions. On March 1 the method of selling malleable fittings by the pound gave way to the present system of selling this product by the piece. By comparison, however, this did not represent any actual change in prices.

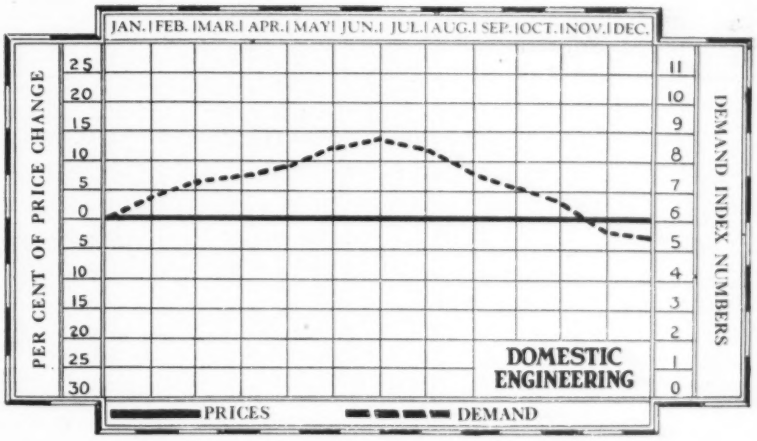
A review of the year's business indicates that the first six months ac-


JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PER CENT OF PRICE CHANGE
30 25 20 15 10 5 0 5 10 15 20 25
DEMAND INDEX NUMBERS
11 10 9 8 7 6 5 4 3 2 1 0
DOMESTIC ENGINEERING
PRICES
DEMAND

counted for the greater percentage of the tonnage for the twelve-month period. The rate of disposition by manufacturers and wholesalers was quite closely aligned with that of the various types of pipe. Producers of cast iron fittings found some extension of their activities in shipments during the heating season. It was the general policy of jobbers to purchase in small lots, according to their near-at-hand requirements.

Range Boiler Prices Were Firm

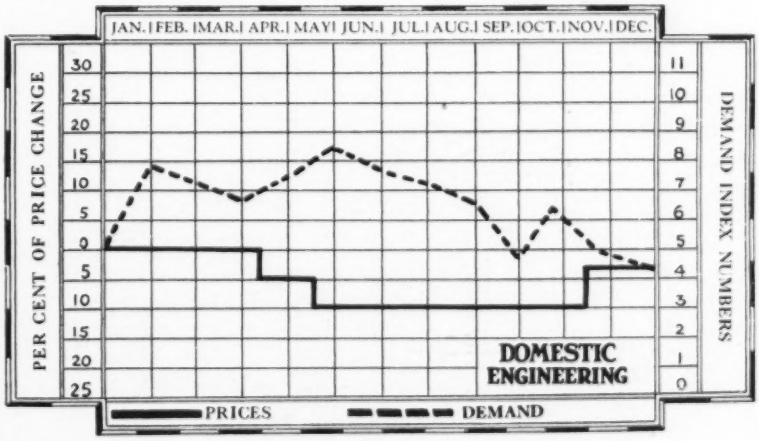
PROBABLY the outstanding feature of the range boiler market during the year 1930 was the steadiness that prevailed in manufacturers' prices on galvanized boilers. Consequently, the "price" line on the chart, which is representative of the 30 and 40 gallon sizes of galvanized range boilers, is straight. The price in effect during the year was established the latter part of April, 1929. Producers of copper boilers announced at least two reductions during the year in their prices to wholesalers.


JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PER CENT OF PRICE CHANGE
25 20 15 10 5 0 5 10 15 20 25 30
DEMAND INDEX NUMBERS
11 10 9 8 7 6 5 4 3 2 1 0
DOMESTIC ENGINEERING
PRICES
DEMAND

While jobbers' sales of galvanized boilers were not heavy in comparison with the records of the past several years, activities in allied products, such as copper boilers, gas storage systems and large size hot water tanks, helped to bolster their total sales in this line. A rather substantial replacement demand also served to overcome the loss in volume occasioned by the drop in residential construction. When the year opened the majority of wholesalers were in possession of only moderate stocks and for the first several months manufacturers' shipments mounted gradually, reflecting quite closely the movement of boilers from jobbers' stocks. With the price situation firm and quick shipments to be had from manufacturers, wholesalers were content to go along with average working stocks. The "demand" line is based on information secured for DOMESTIC ENGINEERING market reports.

First Six Months Were Best for Plumbers' Brass Goods

PRICES on cast and tubular brass goods followed the course of the price of copper to a large extent during 1930. The price situation in plumbers' brass goods makes it almost impossible to show on a chart the exact trend, as so many items are affected in various ways when new price sheets are issued. While no attempt has been made to follow the price changes of every manufacturer in the "price" line on the chart, this line does give a fairly good idea of the general trend of cast and tubular items. Quotations were lowered in April by several manufacturers of cast brass. About the middle of May another reduction was made on certain staple items. Then on November 15 several cast goods manufacturers advanced their prices to wholesalers. Toward the latter part of September, a number of manufacturers announced special prices on quantity lots.

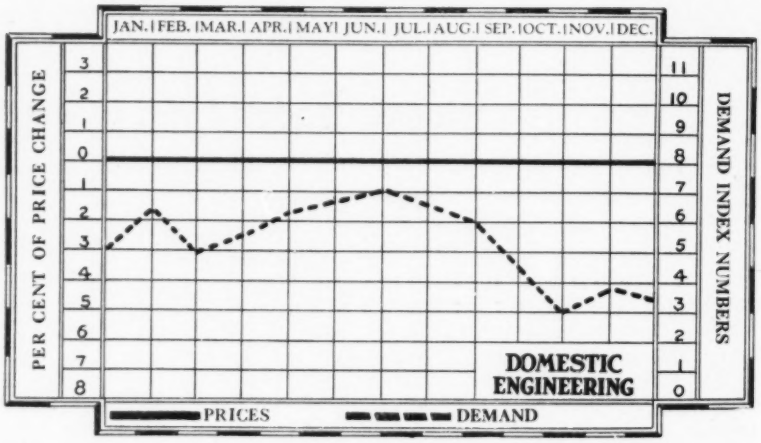

JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PER CENT OF PRICE CHANGE
30 25 20 15 10 5 0 5 10 15 20 25
DEMAND INDEX NUMBERS
11 10 9 8 7 6 5 4 3 2 1 0
DOMESTIC ENGINEERING
PRICES
DEMAND

The "demand" line on the chart indicates as clearly as possible, without definite figures being available, the movement of cast and tubular goods during 1930. Shipments during January were heavy, reflecting an accumulation of orders from wholesalers awaiting completion of inventory.

Another peak was reached in the spring, but mid-summer business was moderate. Several manufacturers report a rather substantial increase in the volume of business on their books, compared with twelve months ago.

Wrought Iron Pipe Market Was Firm

THE plumbing and heating industry absorbed fairly good quantities of wrought iron pipe during the year 1930, which from the viewpoint of mill receipts, was abetted in good measure by requirements for industrial consumption. Distributors were not in the habit of maintaining large stocks, as they were able at all times to procure replacements from mills without delay. Mill prices on wrought iron pipe were not changed during 1930. The last change in mill basing cards occurred on January 2, 1929, at which time an average reduction of approximately 5 per cent was made.


JAN. | FEB. | MAR. | APR. | MAY | JUN. | JUL. | AUG. | SEP. | OCT. | NOV. | DEC.
PER CENT OF PRICE CHANGE
3 2 1 0 1 2 3 4 5 6 7 8
DEMAND INDEX NUMBERS
11 10 9 8 7 6 5 4 3 2 1 0
DOMESTIC ENGINEERING
PRICES
DEMAND

Inasmuch as definite figures are not available on the tonnage of pipe consumed by the plumbing and heating industry, the "demand" line on the accompanying chart is based on data secured for the regular DOMESTIC ENGINEERING market reports. This line, however, gives a good idea of the general movement of wrought iron pipe into this industry. Although tonnage did not reach exceptionally high levels at any particular period of the year, a rather steady consumption accounted for a fairly good tonnage in the aggregate. It has been estimated by those closely allied with the industry, that tonnage for the year was approximately 15 or 20 per cent below that of 1929.

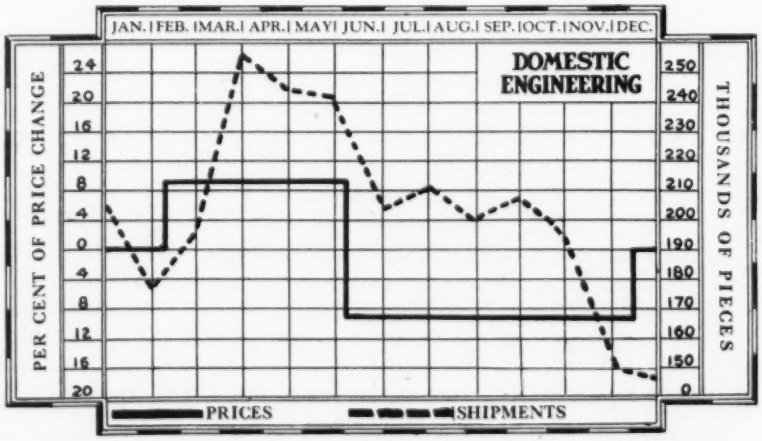
Enameled Ware Shipments Were Lower

DURING the first eleven months of 1930 there were 2,283,197 pieces of enameled sanitary ware shipped by manufacturers, according to figures supplied by the department of commerce, as compared with 3,464,660 pieces for the corresponding period of 1929. This represents a falling-off in shipments for the first eleven months of 1930 of approximately 34 per cent, compared with the corresponding period of 1929. Enameled ware shipments in 1929 were in the neighborhood of 15 per cent below those for the year 1928. The "shipment" line on the chart is based on the department of commerce figures and shows how the business was distributed during the year. December has been estimated, since figures for this month had not been released at the time of going to press.

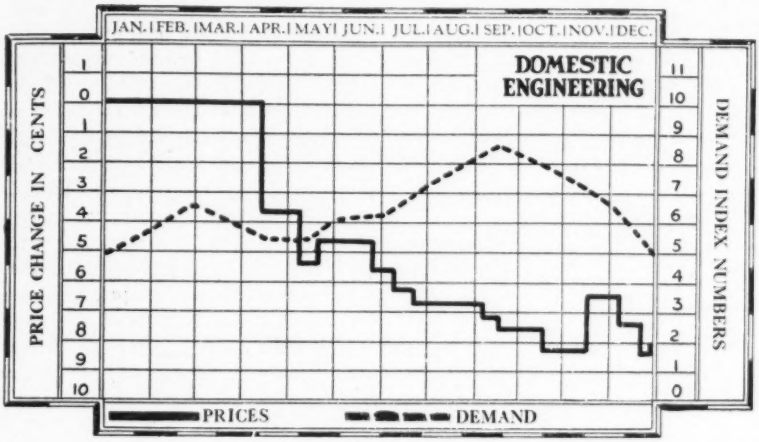
The estimate for the month of December is based on information gathered from manufacturers and wholesalers for the regular DOMESTIC ENGINEERING market reports and also upon the performance of this same month in former years.

During the first eleven months of 1930 shipments of enameled ware were divided as follows: 555,143 tubs, 693,864 lavatories, 714,696 kitchen sinks, and 319,494 pieces of miscellaneous ware. The totals for the same period of 1929 were: 891,702 tubs, 1,051,913 lavatories, 1,093,464 kitchen sinks, and 427,581 pieces of miscellaneous ware.

The year opened with manufacturers' prices at the level established about the middle of the year 1929. The first change in sheet prices of manufacturers occurred February 15, when prices were advanced. Early in June a reduction was announced, and on December 15 prices were again advanced. Shipments picked up in February and March, following the advance in prices in February. March accounted for the heaviest volume of the year. From then on shipments dropped off and held at a more or less even level the remainder of the year. The price advance in December stimulated buying interest somewhat, but it occurred so near to inventory time that wholesalers were not inclined to take material into stock immediately. Jobbers, however, placed a fairly substantial volume of business with their sources of supply.


JAN. | FEB. | MAR. | APR. | MAY | JUN. | JUL. | AUG. | SEP. | OCT. | NOV. | DEC.
PER CENT OF PRICE CHANGE
24 20 16 12 8 4 0 4 8 12 16 20
DOMESTIC ENGINEERING
THOUSANDS OF PIECES
250 240 230 220 210 200 190 180 170 160 150 0
PRICES
SHIPMENTS

Brass Pipe Shipments Were Well Maintained



THE "demand" line on the accompanying chart indicates as clearly as possible, without definite figures being available, the movement of brass pipe into the plumbing and heating field during the year 1930. This line is based on information secured during the course of the year for the regular DOMESTIC ENGINEERING market reports on this commodity. Taken as a whole, shipments for the year maintained a fairly good level, according to most reports, when the volume of construction for the year is taken into consideration. From January until the middle of April manufacturers' prices to their distributors were unchanged from the price established in the spring of 1929.

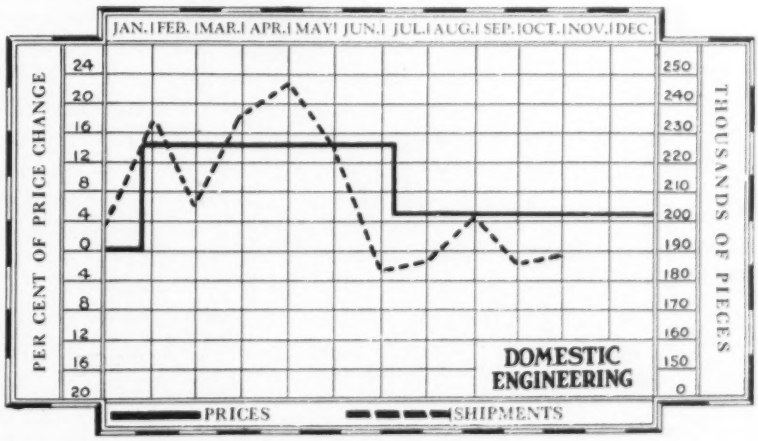
The period from the middle of April to the latter part of October witnessed a number of price reductions on the part of producers. On November 15 a substantial advance in prices was announced by manufacturers, three additional price advances following before the year closed. The "price" line on the chart gives a general idea of the trend of prices during the year, and, while all manufacturers did not change their prices on exactly the same dates, the line nevertheless shows how the market went during the twelve months. The most popular method of buying on the part of wholesalers was for near-at-hand needs, although the price advances in the last quarter brought jobbers into the market for larger quantities than warranted by their current needs.

Movement of Pottery Was Slower

A CLEAR picture of the shipments of pottery during 1930 is given in the "shipment" line on the accompanying chart, which is based on data released each month by the department of commerce. At the time of going to press figures for November and December had not been released, and, consequently, the movement of ware for the last two months is not shown on the chart. In the first ten months of 1930 shipments totaled 2,092,163 pieces, as compared with 2,838,221 pieces for the corresponding period of 1929, which represents a falling-off of approximately 27 per cent from the corresponding period of 1929. Shipments of pottery in 1929 were approximately 5 per cent below those for the year 1928. The chart shows that shipments turned upward in January, went down in February and mounted again in March and April, at which time the high point of the year was reached. The latter part of June saw demand at a low point, picking-up again slightly in July and August. Business during the first half of the year was more or less stimulated by the price advance in January, which caused many wholesalers to anticipate their future requirement.

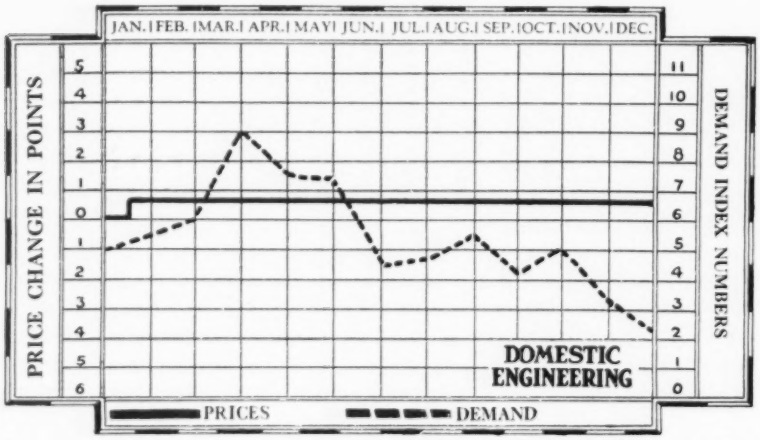
The "price" line is representative only of wash-down bowls and six-gallon tanks. The sheet prices in effect when the year opened were established in September, 1929, when a reduction was announced by manufacturers. Except following the January price advance when jobbers felt it good business to order for the future, business reaching manufacturers reflected the immediate needs of their distributors. Potters were able at all times to forward staple bowls and tanks promptly.

Estimates on the part of manufacturers, based on performances in past years, indicate that shipments turned downward in November and December.


JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PER CENT OF PRICE CHANGE
THOUSANDS OF PIECES
DOMESTIC ENGINEERING
PRICES
SHIPMENTS

Spring Season Was Best For Soil Pipe

THE year opened with the price established by manufacturers in June, 1929, still in effect. During the twelve months of 1930 only one change was made by soil pipe manufacturers in their published prices to wholesalers. This occurred about January 15 and was in the form of an advance, which amounted to one-half of one point. Reports indicate that during the greater part of the twelve months the going market on soil pipe was below the actual sheet quotations, but nevertheless most producers indicate that a fairly satisfactory percentage of profit was had.


JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PRICE CHANGE IN POINTS
5 4 3 2 1 0 1 2 3 4 5 6
DEMAND INDEX NUMBERS
11 10 9 8 7 6 5 4 3 2 1 0
DOMESTIC ENGINEERING
PRICES
DEMAND

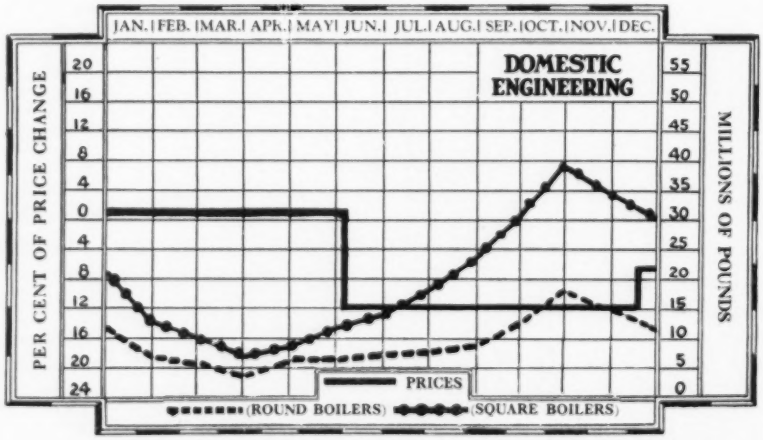
Inasmuch as definite information is not available regarding shipments of soil pipe, the "demand" line on the chart is necessarily guided by information secured for the regular market reports. These reports indicate that the heaviest tonnage was moved during the first five months of the year. Orders placed for shipment after inventory and the price advance in January, which made it good business on the part of buyers for wholesale houses to anticipate their future requirements, served to boost the movement of pipe in the early part of the year. In the last half of the year jobbers came into the market for only such soil pipe as actually needed to meet their near-at-hand requirements, and the tonnage gradually slipped-off as the year progressed. Foundries operated on a curtailed production schedule most of the year.

Boiler and Radiator Tonnage Was Less

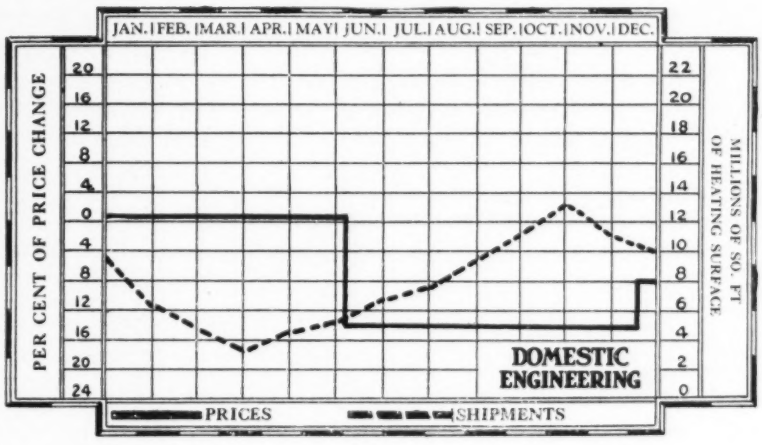
THE shipment lines on the two charts on this page dealing with cast iron boilers and radiation are based on figures secured each month from the department of commerce, and, consequently, give an accurate picture of the movement of round boilers, square boilers and radiation during the first ten months of 1930. November and December are necessarily estimated, as figures for these two months had not been compiled at the time of going to press. As is usually the case, shipments of boilers and radiation moved slowly through the months of January, February and March, but in April manufacturers' shipments commenced to pick up, even though only to a slight degree. From then on tonnage moving from sources of production gained steadily through October, at which time the high point of the year was reached. It will be noted on the boiler chart that each month the tonnage of square boilers was heavier than that for the round type, and as the year progressed the spread between shipments on the two types widened.

The index numbers on the left-hand side of the boiler chart indicate the per cent of price change, zero representing the price in effect

Cast Iron Boiler Shipments


JAN. FEB. MAR. APR. MAY JUN. JUL. AUG. SEP. OCT. NOV. DEC.
PER CENT OF PRICE CHANGE
20 16 12 8 4 0 4 8 12 16 20 24
DOMESTIC ENGINEERING
55 50 45 40 35 30 25 20 15 10 5 0
MILLIONS OF POUNDS
PRICES
(ROUND BOILERS)
(SQUARE BOILERS)

Radiator Shipments


JAN. | FEB. | MAR. | APR. | MAY | JUN. | JUL. | AUG. | SEP. | OCT. | NOV. | DEC.
PER CENT OF PRICE CHANGE
20 16 12 8 4 0 4 8 12 16 20 24
22 20 18 16 14 12 10 8 6 4 2 0
MILLIONS OF SQ. FT. OF HEATING SURFACE
DOMESTIC ENGINEERING
PRICES
SHIPMENTS

when the year opened. Early in June prices were reduced by manufacturers and about the middle of December new sheets incorporating an advance were issued. The index numbers on the righthand side of the boiler chart designate shipments in millions of pounds. Prices on radiation were changed at the same time as boiler prices. On the radiator chart the index numbers at the right designate shipments in millions of square feet of heating surface. Reports indicate that the market was firm during the first five months, but that sheets were not strictly adhered to between then and the middle of November. At the latter date a strengthening was apparent, followed by the formal advance in December.

Standardization of Colors for Sanitary Ware Will Be Considered at Conference

A GENERAL conference, to consider the adoption of a commercial standard for colors for colored sanitary ware, as recommended by the Manufacturers' Advisory Committee on Colored Sanitary Ware, will be held at 10:15 a. m. Friday, January 23, 1931, at the Bureau of Standards, Washington, D. C.

All those interested in the production, distribution and use of colored sanitary ware, including sinks, lavatories, bathtubs, water-closet bowls, tanks and seats, as well as tile and bathroom accessories, are invited to be present in order that the standard as finally adopted shall be acceptable to all interests or to make comments in writing.

This standardization project is of particular interest at this time not only because of the growing appreciation and use of color in bathroom equipment, but as a possible means of solving color problems existing in allied industries.

Proposed Commercial Standard for Colors for Colored Sanitary Ware as Recommended by the Advisory Committee on Colored Sanitary Ware
January 3, 1931

I. Scope

This standard covers colors to be used as a guide in production of sanitary ware, plumbing fixtures and allied products, made of vitreous china, porcelain (all clay), enameled iron, metals, wood, or glass.

The development of individual colors for special pieces, for instance, drinking fountains, and the matching of colors for special work will not come within the scope of this commercial standard.

II. Purpose

Manufacturers of colored sanitary ware have encountered costly problems due to the multiplicity of colors that are expensive to manufacture, impracticable to stock, and unsatisfactory to sell. The increasing variety of colors has resulted in a lack of harmony especially when one manufacturer supplies; for example, the vitreous china lavatory, another the enameled iron bath tub, and still another the seat for the water-closet bowl. This standard is an attempt to solve these problems.

It is not the purpose of this standard to retard initiative on the part of individual producers or to act as a brake on the introduction of new colors, but it is intended to provide an authoritative reference to the recommendations of the industry as a whole based on composite experience of the producers.

III. General

The following requirements are necessary for the successful coordination of individual color ranges in vitreous china, porcelain (all clay), enameled iron and allied products.

The colors must be:

(1) desirable, agreeable and pleasing from the purchaser's viewpoint,
(2) economically produced,
(3) easily reproduced,
(4) suitable to enameled cast iron, vitreous china, porcelain (all clay) and wood seats from a technical as well as from a sales standpoint, and
(5) limited in number.

In the standardization of colors for sanitary ware it should be borne in mind that an absolute match of shades is neither possible nor necessary, but the shades should match as nearly as the differences in the character of materials, lighting conditions and manufacturing processes permit. Perhaps the most difficult problem to contend with in color matching arises in trying to match one type of colored surface with another of an entirely different texture.

The appearance of any color is influenced by:

(1) Texture of surface of sample,
(2) surrounding colors,
(3) fatigue of the retina,
(4) the variance in sensibility of certain parts of the retina,
(5) after images, and
(6) different illuminants—their intensity and spectral character.

Certain coloring materials possess qualities that alter their appearance under different conditions of production.

Daylight is usually considered white and is the proper type of illumination under which colors should be examined. Daylight, however, is variable throughout the day. Colors that match in natural light are often different when compared under artificial light. Colorists have more or less universally adopted north-skylight as standard for matching colors.

IV. Method of Making Color Comparisons

When comparing colors of colored sanitary ware, the line of observation shall be at right angles to the surface of the sample, which shall be so placed under the diffused light of a northern sky, that minute shadows affecting the appearance of the colored surface will be reduced to a minimum; and the light source, reflections of lights, or differently colored surfaces should be prevented from being mirrored in the gloss of the sample.

The two surfaces to be compared shall be placed side by side on the same plane under a mask of neutral gray paper at least four inches square, with an opening 1⅛ by ¾ in. cut in its center. The sample shall be placed under the mask to occupy one-half of the opening; the color with which the comparison is to be made shall be placed under the mask to occupy the remaining half of the opening. The purpose of the mask is to conceal the surrounding colors; to bring into immediate focus the single color to be examined; and to restrict the area of the sample to that of the color with which it is compared.

The normal recovery of the eye from the natural fatigue occurring by examining colors is distinctly rapid. Nevertheless some time should be permitted to elapse between making successive comparisons.

No attempt should be made to match colors from memory.

V. Detail Requirements

The six colors recommended as standard colors for sanitary ware shall be designated as follows:

SC-11—Green.
SC-20—Orchid.
SC-30—Ivory.
SC-40—Blue.
SC-51—Light Brown.
SC-60—Black.

The standard median shade samples shall be retained at the Bureau of Standards. Duplicate reference median shade samples may be obtained from the Secretary of the Manufacturers' Advisory Committee on colored sanitary ware as a basis for production control. The Manufacturers' Advisory Committee has fixed light and dark limits of shades for each color and samples are to be retained at the Bureau of Standards. Such samples will be available only for the settlement of disputes. While any shade within these limits will no doubt conform with the requirements, it is understood that every effort will be made to conform as nearly as possible to the selected median shades.

The Advisory Committee recommends that secrecy in connection with the subject of colored glazes and enamels be eliminated. In order that manufacturers may have a thorough understanding concerning colored glazes, formulas, firing temperatures, and other pertinent information have been filed with the Bureau of Standards and are available upon request.

The color of colored sanitary ware shall be considered to match the standard median color samples when, on comparison of the ware with a duplicate reference median color sample, under the specified lighting conditions and by the specified method, there is no appreciable difference in color.

It is recommended that all colored sanitary ware shall be considered as special rather than staple owing to the number of different types and shapes and the cost involved in stocking such a variety.

◆

Standards Proposed for Pipe Flanges and Fittings

Drafts of proposed American standards for pipe flanges and fittings have been prepared by the American Standards Association's technical committee on this subject under the sponsorship of the American Society of Mechanical Engineers, the Heating and Piping Contractors National Association, and the Manufacturers' Standardization Society of the Valve and Fittings Industry. These drafts cover pipe plugs of cast iron, malleable iron, cast steel, and forged steel; steel base-fittings for maximum steam working pressure of 250, 400, 600, and 900 lb. per sq. in.; and steel companion flanges.

The proposed standard on pipe plugs of cast iron, malleable iron, cast steel, and forged steel was prepared by the sub-committee on screwed fittings, and is now being widely distributed to industry for criticism and comment. The proposed standard is based on material originally developed by the Manufacturers' Standardization Society of the Valve and Fittings Industry and adopted by the society in April, 1929, as a standard practice for use in connection with the American standard for 125-lb. and 250-lb. cast iron screwed fittings (ASA B16d-1927) and the American Standard for 150-lb. malleable iron screwed fittings (ASA B16c-1927).

The draft standard for steel base fittings for maximum steam working pressure of 250, 400, 600, and 900 lb. per sq. in. was formulated by the sub-committee on steel pipe flanges and flanged fittings. This proposal also originated with the Manufacturers' Standardization Society of the Valve and Fittings Industry which adopted it as standard practice in October, 1929. As stated in the footnotes below the tabulated dimensions in the draft, this standard is not complete in itself but must be treated as a supplement to, and used in conjunction with, the American standard for steel pipe flanges and flanged fittings (B16e-1927).

The draft on steel companion flanges was prepared by the sub-committee on steel pipe flanges and flanged fittings and is a revision of a former draft generally distributed for comment and criticism in February, 1929, which distribution was followed by a questionnaire sent out in December, 1929. The replies to this questionnaire have led to certain revisions which are included in the new draft.

A limited number of copies of these drafts are available for loan through the A.S.A. Information Service, 29 West 39th street, New York City. This information service makes available for American industry a large file of American and foreign standards and specifications on all subjects of industrial interest.

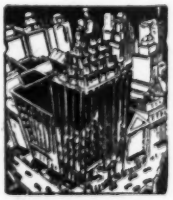
Current MARKETS

THE fortnight just passed was, in the main, a period of inventory-taking for the majority of wholesalers of plumbing and heating supplies, and the volume of material that moved into consumption during the two weeks was moderate. New building operations were infrequent during the period and contractors were principally engaged in projects previously started and in repair work. Reports from the large jobbing centers indicate that a more optimistic attitude prevails in most quarters, and the word from sellers in various sections of the country is that numerous large operations are nearing the contract stage in their respective territories. Manufacturers in a number of instances say that their shipments to wholesalers who have completed inventory compared favorably with a year ago, and a few producers say they are running ahead of last year in this respect.

There is every indication that 1931 will see the building industry leading the procession back toward normal prosperity, according to the tenth annual building survey and forecast of the Architectural Forum. In past years, with few exceptions, this forecast has painted a reasonably accurate picture of the happenings of the forthcoming year in the construction field.

Following is a nation-wide summary of building types and what the forecast predicts for 1931:

Automotive.....Slight increase
Banks(Indiv'ual bldgs.) Practically the same
Apartments.....Decrease about 18%
Apartment hotels.....Slight increase
Clubs and fraternal...Increase about 40%
Community and memorial..Inc. about 100%
Churches.....Increase about 37%
Dwellings (below $20,000)..Inc. about 15%
Dwellings ($20,000 to $50,000)...Slight inc.
Dwellings (over $50,000)..Approx. the same
Hotels.....Increase about 30%
Hospitals.....Increase about 10%
Industrial buildings...Decrease about 40%
Office buildings.....Slight increase
Public buildings.....Increase over 200%
Schools.....Increase about 5%
Stores (including warehouses).....
.....Decrease about 55%
Theaters.....Increase about 150%
Transportation (rail and air).....
.....Decrease about 30%
Welfare, Y. M. C. A., etc.....Inc. about 45%



NEW YORK

Volume Shows Increase

IN the opinion of most manufacturers interviewed the volume of shipments to wholesalers following completion of inventories was favorable compared with that of a year ago and in some instances, notably in copper-bearing products, was said to exceed the amount shipped at that time. Wholesalers report that contractors' requirements are of moderate proportions at present, with repair work the dominating factor in current demand. Several large operations are about to proceed under contract terms within the near future in the city proper, with the requirements for material in this industry to be called for about February fifteenth-March first. In some cases, contracts have been awarded to contractors for such installations, and it is said that estimators among wholesale houses have a comparatively heavy file of quotations outstanding at this time; all of which represents potential volume business which must be placed sooner or later.

Except for the slight flurry of comment occasioned by a bank run in this area some time ago, credit conditions remain unchanged on a satisfactory basis to wholesalers and manufacturers alike. In fact, it is generally said that collections are currently better on a relative basis than they have been for ten years. To be sure, this condition reflects to a large extent the diminished turnover of the last quarter of 1930, but nevertheless

STOPS LEAKS — CLEANS BOILERS

Carry these companion money makers with you wherever you go. They will be a source of real profit to you.

W J Cleanser for cleaning steam, vapor or hot water heating systems, and Boiler Solder Seal to stop leaks.

Write us for detailed information of what these products are made of and what they will do. Write today!

RADIATOR SPECIALTY CO.
CHARLOTTE N. C.

The GLOBE Sizzler

THE NO-POCKET, ONE-PIECE FURNACE COIL

Patent No. 1649660

Easy to Install — Brings Real Money

THE Globe Sizzler is easy to install because it is adjustable to variable water-pipe openings. It actually costs but little more than making up ordinary furnace coils. Customers recognize its superiority, so it brings you real money.

It can't clog or lime up because it contains no pockets. Water always flows noiselessly and freely through the Globe Sizzler, in a horizontal and upward direction. *Write us today for full information.*

GLOBE MACHINERY & SUPPLY COMPANY
227 W. Court Ave. Des Moines, Iowa

The Globe Sizzler is made in different lengths to fit all makes of furnaces. It comes to you ready for installation, each coil packed in an individual carton.

facilitates the transaction of current business, which is expected by many to increase at least to a seasonal extent in March, April and May.

Price changes since the first of the year have been confined mainly to miscellaneous items. Sellers among wholesalers and manufacturers alike are said to be inclined toward the maintenance of firm quotations, as it is the general tenor of sentiment that commodity prices have at last seen their low, and that from now on the trend will be up, notwithstanding the usual irregularities and fluctuations witnessed at the conclusion of an extended period of falling prices.

Export business increased somewhat at the turn of the year according to most exporters, but many operations pending abroad, especially in South American and Far Eastern countries, are being held up by the inability of those countries to finance the projects. The drop in commodity prices has affected the financial status of several countries to such an extent that it is reported that they are unwilling or unable to borrow further at this time. Such building as is being done at present is said to be mainly under American auspices.

Requirements in the suburban areas of the metropolitan district are holding up relatively well in the opinion of most wholesalers interviewed, with the demand of consumers centering largely on high grade and special materials. For the first ten days in January business in the outlying areas is reported generally to be equal or ahead of that during the same period of last year, and it is felt that comparisons from now on will begin to be on a more favorable basis.

Contracts let for new construction of all types in the metropolitan area of New York during the week from December 20 through December 26 totaled $8,634,900, according to F. W. Dodge Corporation. This brought the total for December to date to $52,614,300, which was at the rate of $2,391,600 per business day. In November the rate of contract-letting was $2,465,300, while in December, 1929, it was $4,243,600 per day.

The contract record for the first 22 business days of December showed $26,048,300 for new residential buildings; $17,951,500 for non-residential buildings; and $8,614,500 for public works and utilities.

CENTRAL WEST

Survey Predicts Building Gain

ONE of the most interesting pieces of news to come out since our last review appeared is the Architectural Forum's annual building survey and forecast, which in past years has usually given an accurate insight into what the next twelve months had in store for the construction industry.

A special analysis for the Chicago area, including the states immediately surrounding it, would seem to indicate an increase during 1931 in commercial building activity, in the construction of institutional buildings, publicly financed buildings, churches and memorial buildings. It is anticipated also that there will be a gain of 10 or 15 per cent in the construction of individual dwellings and development operations of that nature.

On the other hand, a definite decrease in the construc-

tion of industrial buildings is predicated, as well as a slow-up in the building of hotels and apartments, and social and recreational structures.

The mortgage financing situation in the Chicago area seems to be in general more favorable than last year and from other sources it is indicated that close to $300,000,000 will go into the financing of investment and residential structures alone. Following is a table which compares 1930 construction in the Chicago area, which, as stated, includes neighboring states, with the 1931 Forum forecast:

	1930 Construction	1931 Forecast
Commercial buildings	$176,000,000	$204,000,000
Industrial buildings	197,000,000	119,000,000
Educational buildings	104,000,000	144,000,000
Hospitals and institutions	47,000,000	58,000,000
Public buildings	35,000,000	130,000,000
Religious and memorial	33,000,000	51,000,000
Social and recreational	31,000,000	27,000,000
Residential buildings (including dwellings, apartments, and hotels)	274,000,000	229,000,000
Total construction	$897,000,000	$962,000,000

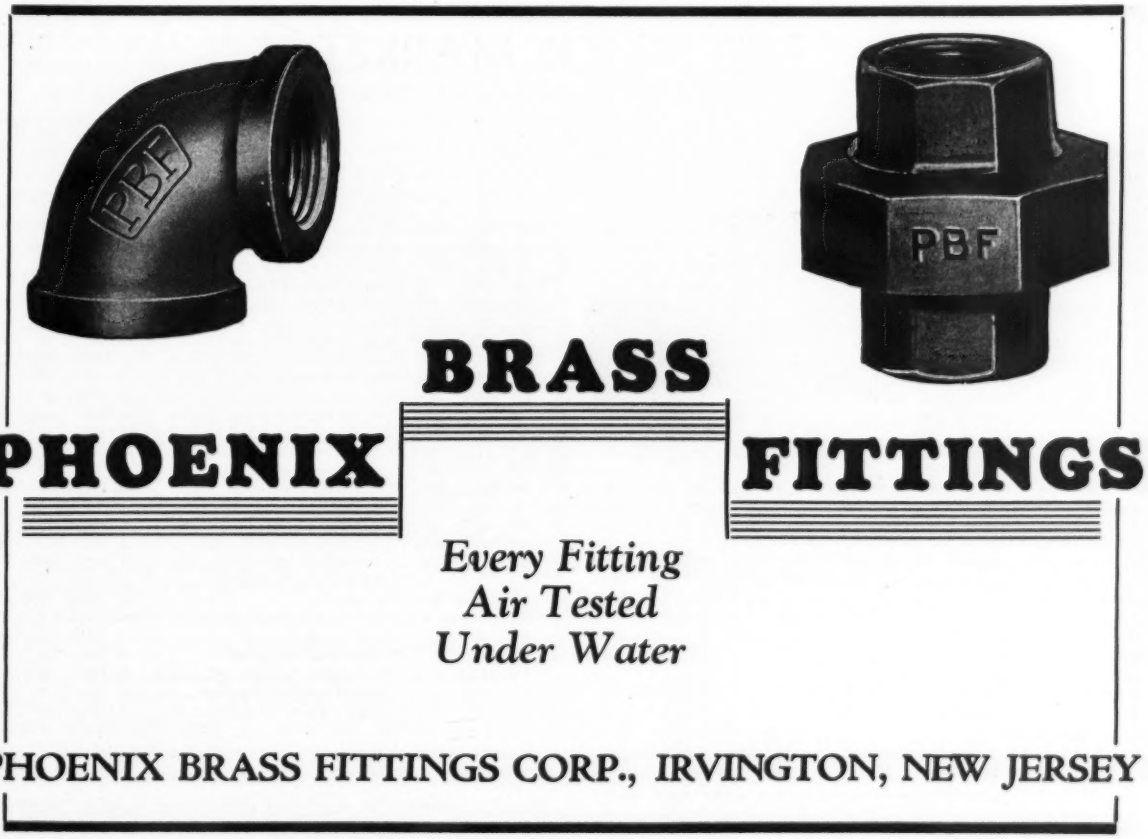
The past two weeks failed to bring much in the way of new business to plumbing and heating contractors in this territory, according to those interviewed during the period. Wholesalers say that their turnover of material was moderate and that most orders were for the smaller quantities. The fortnight, in the case of jobbers, was devoted largely to stock counting and it would seem from early reports that material in the possession of wholesalers is considerably lighter than in recent years at this time.

Heating materials, particularly for repair purposes, moved at a fairly good rate, but in no way comparable to a month or so ago. Soil pipe, steel pipe and wrought iron pipe were not consumed in more than fair seasonal proportions by contractors, and jobbers' holdings of these materials are light. Enameled ware, pottery, plumbers' brass goods and other materials in the finishing classification were reported to move at a better rate than the roughing-in items, but in this group, too, seasonal conditions prevailed and demand was light. Some representatives of manufacturers of cast and tubular brass goods say that wholesalers have shown a willingness to come into the market for their future requirements, at least in a moderate way. The recent advance in manufacturers' prices on enameled ware, it is said, stimulated buying on the part of jobbers. The price advance on boilers and radiation quickened interest on the part of wholesalers and contractors for this material. But except where price advances have made it seem good business to cover on their future requirements, jobbers have more or less confined their purchases to near-at-hand needs.

MIDDLE ATLANTIC

Business Tone Is Moderate

THE past fortnight produced little activity in the point of turnover of goods. Wholesalers were actively engaged in completing their inventory taking, and the seasonal holiday atmosphere did not induce any contractor specifications of sizeable proportions. Jobbers state that the principal requirements of their con-



tractors have been heating materials and other miscellaneous allied items, there being quite some demand for this season of the year for heating repair work.

Recent price advances in enameled ware, and boilers and radiators stimulated business to the extent of considerable commitments being made by contractors and wholesalers for future delivery. Dealers' stocks are generally at a low ebb, and this, in the opinion of a majority interviewed, will cause a noticeable increase in purchases for stock by wholesalers during the coming weeks. No price changes were announced during the period, and little difficulty is experienced in securing the delivery of materials from manufacturing sources even though curtailed production schedules have been effected in all quarters.

Practically all manufacturers, with the exception of wrought iron pipe and boiler and radiator producers, report a decided seasonal slump in their sales volumes for the past 30 day period, but are hopeful that the next few weeks will usher in some stock replenishing orders. One wrought iron pipe manufacturer's representative interviewed notes that December was about the best month of 1930 with the exception of January in the point of sales volume. Likewise boiler and radiator producers say that the past month has produced much unexpected business, giving the year a gratifying close. Contractor demand for plumbing material was at a low ebb during the fortnight, with few commitments reflecting to makers, other than those covering specific projects.

Contractor and consumer demand for plumbing and heating materials showed a general decline in 1930 as compared with 1929, according to reports from wholesaler and manufacturing sources in the Middle Atlantic section. Throughout the whole year jobbers pursued the policy of quick purchasing, keeping their stocks at a minimum, and only replenishing as demand seemed to warrant. All through the year activity in the field was quickly reflected to manufacturing sources.

NEW ENGLAND

Prospects Are Encouraging

PLANS for building development in the New England States for the year 1931 have so broadened during the several preceding months that pessimistic feelings have given place to an optimistic attitude on the part of those engaged in the plumbing and heating trade. There is evident an earnest interest on the part of those comptrollers of finances in state, municipal and private corporations to expend, in a larger way than heretofore, for the promotion of construction. Among other enterprises, there are predominant harbor and port developments, bridge and under-water tunnel constructions, and an extensive prospectus of highway development, all of which reflect the desire of capital to co-operate with labor in relieving the unemployment situation. The New England Telephone and Telegraph Company made public during the past week its plans of expenditures for new buildings and renovations of present holdings which are estimated to cost several million dollars during the early part of the year alone. There are noted almost daily instances of cotton mills, shoe factories, etc., increasing

THE STOCK MARKET

Range for Week Ending January 3, 1931†

Par Value	1930-1931 High	1930-1931 Low		*	Weekly High	Weekly Low	Weekly Close
NP	156⅝	87½	Air Reduction Sales Co	A	102¼	94½	101¾
NP	39¾	15	American Rad. & Stand. San. Corp	A	17	15	16⅞
25	100¾	28	American Rolling Mills Co	A	33⅛	28⅝	33
50	81½	25	Anaconda Copper Mining Co	A	32¾	28	32⅝
NP	46⅛	21	Bastian-Blessing Co	C	22	21¾	21¾
NP	110¼	47⅞	Bethlehem Steel Co., com	A	53¾	47⅞	53½
100	134	112¾	Bethlehem Steel Co., pfd	A	115¼	114⅝	114⅝
NP	30⅛	10	Brunswick-Balke-Collender Co	A	11⅞	10	11⅞
NP	112⅜	33⅛	A. M. Byers Co., com	A & E	42⅜	36	42
100	114	106	A. M. Byers Co., pfd	A & E	106	106	106
100	127½	102½	Century Electric Co., com	F	103½	103½	103½
50	1½	⅝	Chicago Nipple Mfg. Co., "A"	B	⅝	⅝	⅝
50	1½	1	Chicago Nipple Mfg. Co., "B"	B	1	1	1
25	45	39¾	Crane Co., com	C	40	40	40
100	119½	113	Crane Co., pfd	C	115½	114¾	115
20	21	3⅞	Eagle-Picher Lead Co	H	5⅛	4⅞	5
NP	39¾	3½	Fairbanks Co., pfd	A	4	3⅞	3⅞
NP	50½	19	Fairbanks, Morse & Co., com	A	22½	19	22½
100	110½	102	Fairbanks, Morse & Co., pfd	A	104½	104	104½
NP	20	6	Greenfield Tap & Die Corp	B	6	6	6
NP	29	14⅜	Iron Fireman Mfg. Co	C	17¼	16	17¼
NP	148⅜	48¾	Johns-Manville Corp., com	A	60¾	51⅛	59½
100	123⅝	117	Johns-Manville Corp., pfd	A	118	118	118
100	123½	118	Jones & Laughlin, pfd	A & E	119⅝	119⅜	119½
NP	76¾	37	Minneapolis-Honeywell Reg. Co., com	A	41¼	37	47¼
NP	73	32¾	Modine Mfg. Co	B & C	37	32¾	37
NP	34	14¼	Motor Wheel Corp	A	15¼	14¼	15⅛
100	189½	114	National Lead Co., com	A	116	116	116
100	144	135	National Lead Co., pfd. "A"	A	136⅜	135⅜	136
100	120	116	National Lead Co., pfd. "B"	A	118⅜	118	118
NP	4½	½	National Radiator Corp., com	A	1	⅝	1
NP	11	1¾	National Radiator Corp., pfd	A	2¼	2	2
5	31⅜	11	Herman Nelson Corp	B	11½	11	11
NP	76	59⅝	Ohio Brass Co., "B"	B & G	62	62	62
NP	30	5¼	Revere Copper & Brass, Inc., com	A	13	9½	13
NP	104	85	Revere Copper & Brass, Inc., "A"	A	85	85	85
NP	3	¾	Richmond Radiator Co., com	B	¾	¾	¾
NP	12	3½	Richmond Radiator Co., pfd	B	3½	3½	3½
NP	33	21	Ruud Mfg. Co	C	24	23¼	24
NP	37¾	19⅞	Spang, Chalfant & Co., com	A	25	25	25
100	96	92	Spang, Chalfant & Co., pfd	A	93½	93½	93½
NP	32½	14½	Time-O-Stat Controls Co., "A"	C	18	16⅝	16⅝
NP	106¾	52½	Union Carbide & Carbon Corp	A	60¼	54½	59⅜
20	38¼	18½	U. S. Cast Iron P. & F. Co., com	A	29¾	26⅝	29⅝
NP	21	15⅝	U. S. Cast Iron P. & F. Co., 1st pfd	A	18⅜	18	18½
NP	21¼	18½	U. S. Cast Iron P. & F. Co., 2nd pfd	A	21½	21¼	21½
NP	55	23	U. S. Radiator Corp., com	B & D	25	25	25
100	100	100	U. S. Radiator Corp., pfd	D	100	100	100
NP	35	11	U. S. Rubber Co., com	A	13	11½	12⅞
100	63⅞	19½	U. S. Rubber Co., pfd	A	22⅝	20½	22¼
100	198¾	134⅜	U. S. Steel Corp., com	A	143½	135¾	143½
100	151¼	140	U. S. Steel Corp., pfd	A	143⅞	142⅜	143¾
NP	9	2	Universal Pipe & Radiator Co	A	2½	2	2½
NP	42	10½	Walworth Co	A	12½	10½	12⅜
NP	19½	5	Wayne Co., com	B & C	5½	5	5
NP	39	17	Wayne Co., pfd	B & C	19½	19½	19½
100	110	93	Wheeling Steel Corp., com	B	110	108	110
100	135½	131½	Wheeling Steel Corp., pfd. "A"	B	133	133	133
NP	23¾	16	Williams Oil-O-Matic Htg. Corp	C	16	16	16
NP	150¼	69½	Youngstown Sheet & Tube Co	A	70½	70	70¼

*Where listed—

A—New York Stock Exchange
B—New York Curb Exchange
C—Chicago Stock Exchange
D—Detroit Stock Exchange
E—Pittsburgh Stock Exchange
F—St. Louis Stock Exchange
G—Cleveland Stock Exchange
H—Cincinnati Stock Exchange

†If there is no trading during the current week, range represents last week recorded.

The Metal Market

	Jan. 6	Avg. Nov., 1930	Avg. Sept., 1930	Avg. 1929
PIG IRON—				
No. 2 foundry, Chicago	$17.50	$17.50	$17.50	$20.00
PLATES AND SHEETS—				
Steel boiler plates, Pittsburgh, per lb.	1.60c	1.60c	1.60c	1.93c
Blue annealed sheets, No. 13, Pittsburgh, per lb.	2.05c	2.05c	2.10c	2.17c
Black sheets, No. 24, Pittsburgh, per lb.	2.35c	2.35c	2.40c	2.85c
Galvanized sheets, No. 24, Pittsburgh, per lb.	2.90c	2.95c	3.00c	3.57c
TIN—				
Straits tin (spot)	27c			
LEAD—				
E. St. Louis	4.95c			

The Old Metal Market
Dealers' Buying Prices

	Per lb.		Per lb.
Aluminum clippings	12 c	Copper, light	6½c
Block tin pipe	18¾c	Heavy copper and wire	7½c
Brass, light	4¼c	Zinc	2.00c
Brass, heavy yellow	4¼c	Lead, heavy	3¾c
No. 1 comp. red brass	6½c	Solder joints (close cut)	6¾c
Heavy crucible copper	7½c		

NOTE: Prices are those quoted on Tuesday of this week.

their payrolls, making extensions of their factory facilities and in a general way preparing for a restoration of activity.

Low interest rates on bank loans and the amount of credit available for sound enterprises, and there is a large volume of worth while building extant, have always foreshadowed a business revival. A leading financier says in part: "During a period of pessimism that is always prevalent at the bottom of a depression it is difficult to look ahead. Yet the very extent to which the depression has gone is one of the strongest factors making for recovery." Although commodity prices vary considerably, leading manufacturers utilize the low level to acquire raw materials at lower prices than would otherwise be available and to expand their plants when construction and labor costs are comparatively low. There has been registered no particular progression as yet in activities in the ranks of master plumbers and steamfitters, although the former are more occupied than heretofore in figuring on prospective work. It is said that architects, taken as a group, have more draftsmen engaged than for a number of months.

PACIFIC COAST

Jobbers Busy With Inventory

REPORTS from the various jobbing centers on the Pacific Coast show little, if any, increased activity during the past fortnight. This period of the year finds practically all distributors busy on inventory and obtaining their final figures on the year's operations.

The general tendency among most industries on the Coast is to consider the coming year as a tempering period which will clear the business atmosphere. The year 1930 was one which taught many firms the necessity of selling merchandise irrespective of volume and of carrying stocks more with the idea of making a profit on the selling price than by speculation. This is particu-

Dehn Means Positive Results

There is no guesswork connected with the installation of the PEERLESS Garage Drainage System. All the experimenting has been done and all the kinks removed by George J. Dehn. You and your customer are sure of lasting, trouble-free satisfaction when a PEERLESS has been installed.

New Number Thirty Catalog illustrating and describing some new and improved appliances upon request. Your jobber can supply you.

"THERE ARE NO SUBSTITUTES EQUALLY AS GOOD."

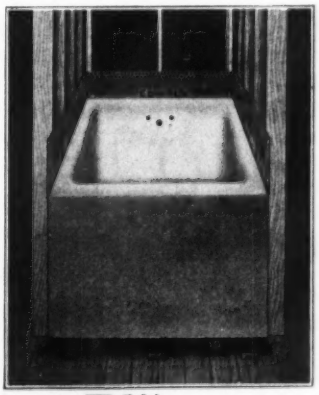
COMPOUND INJECTOR & SPECIALTY CO.
Established 1897

GEORGE J. DEHN, S. E., President
419-421 D N. Laramie Ave., Chicago, Illinois

Originators, Designers and Sole Manufacturers of

DEHNSANIGARD
THE QUALITY GOODS
Trade Mark Registered

Fig. 62. PeerlesS Garage Drainage System correctly installed. Patented.



The
LUCKE
Leak Proof Tub Hanger is Going Up in Demand

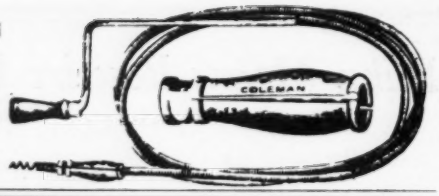
THE LUCKE LEAK PROOF TUB HANGER

Contractors are specifying and installing the Lucke Tub Hanger in new work because it puts an effective stop to water seepage between the walls and prevents the tub from settling or pulling apart from the plaster or tile.

Lucke Hangers are finding a big market in both remodeling and new work. Write today for full descriptive information and prices.

WILLIAM B. LUCKE
WILMETTE
ILLINOIS

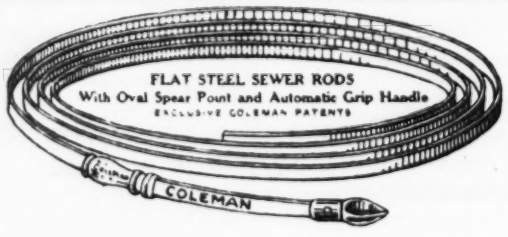
Flexible Coil Wire Sewer and Pipe Auger with an automatic grip handle.



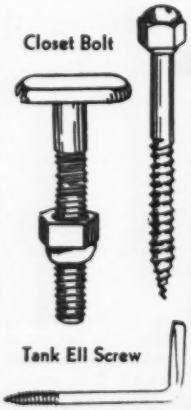
COLEMAN

Those obstinate jobs that take so much time now, with makeshift sewer and drain cleaning equipment will yield easily and quickly to Coleman's tools. If you're not completely equipped with Coleman time-savers now, order them at once. Write direct or ask your jobber.

Allan J. Coleman
208 N. Wabash Ave. Chicago, Illinois



HINDLEY
SPECIALTIES



How many times has your job been held up because necessary specialties were not at hand?

The small investment that a complete stock of these specialties will cost you will be as nothing compared to the time and money you can save by having them when you want them.

All Hindley Specialties are of the finest quality.

Write for catalog

HINDLEY MFG. CO.
VALLEY FALLS, R. I.

larly true with the plumbing and heating business, as even with the decreased dollar sales and tonnage volume quite a few jobbers showed a profit on the year's business.

The Pacific Coast as a whole is a most rapidly growing section of the country, and the normal growth alone assures a fair amount of business at all times. Its industries are many and diversified, with the result that the general depression has not been as noticeable as in some other sections of the country.

Plumbing and heating jobbers are probably entering 1931 with the smallest inventory for years past, and while stocks are low, they are well assorted and the trade's needs are being taken care of without delay.

Distributors' prices to the trade on most classes of plumbing material are more firm in some sections of the Coast than in others, and this condition has been in effect for some time past.

Plumbing material, such as enameled ware, pottery and plumbers' brass goods, continue to move in about the same volume as they have maintained for several weeks past, and, as a whole, a fair amount of this material is being sold at present, although most of it is for contracts previously secured. Rough material such as steel and wrought iron pipe, soil pipe and fittings show little, if any, change in demand and are moving at a rate which seems to vary little from week to week. Pipe fittings are in fair demand, with stocks in distributors' hands ample. Combination water heaters are moving in good volume.

SOUTHEAST

Moderate Buying Continues

A PROMISING sign at this time for the plumbing and heating industry in this territory is the quite generally expressed feeling that construction will improve definitely in the spring. Local financial institutions, including the various loan and banking houses, are reported to be extending every effort to bring about normal construction activity. Most real estate and first mortgage specialists are of the opinion that the decline in construction has reached bottom and that the next six months will witness a decided upward swing. It is believed by many observers that residence building will take the lead in the upward trend. Sapient factors in the revival are low construction costs, ample funds for financing sound projects and the availability of experienced and efficient craftsmen.

According to reports from F. W. Dodge Corp., construction work for Georgia for the past eleven months totaled $49,590,100 while the total for the corresponding eleven months of last year was $55,403,800. Construction projects for Atlanta for the month of December were $327,473, against $261,200 for November. This was considered a sizeable gain inasmuch as December usually shows a decline. Another bright side of the construction picture is the increased number of government projects scheduled to be released to contractors in the first quarter of this year.

Questions?

ASKED BY READERS AND ANSWERED BY EXPERTS

Four Definitions of "Master Plumber"

Editor, DOMESTIC ENGINEERING:—Please advise me the correct definition of "Master Plumber" so that we may be able to use it in a new plumbing ordinance that we are trying to have passed.

Kansas. O. M. C.

A proper definition for Master Plumber for use in a plumbing code is valuable often from a legal point of view, and therefore depends to some extent on the way in which the regulations of the local plumbing code governs the operations of the master plumber.

We are giving below four different definitions as found in four of the leading plumbing codes of the country.

"Master Plumber.—A person who himself, or in case of a firm or corporation, a bona fide member of the firm or corporation, is skilled in the planning, superintending and practical installation of plumbing as laid down in this ordinance, and who shall have successfully passed the required examination and received a license as a master plumber."

"Master Plumber.—A master plumber is one skilled in the art of plumbing, and who is engaged in the business of plumbing and who does the actual plumbing himself or through journeyman plumbers, and the term master plumber is inclusive of contracting or employing plumbers."

"Master Plumber.—The term 'master plumber,' as used in connection with the plumbing ordinances of this city, shall be taken to mean a person who has an established place of business and who, either as principal or as the representative of any person, firm or corporation, represents himself as competent and qualified, and undertakes to construct, alter or make additions, or who, for himself or for any person, firm or corporation, undertakes to and does construct, alter or make any addition to a system of house drainage."

While these three definitions may answer the purpose in many instances, in our opinion the definition can be made to perform greater service and cover the legal considerations more effectively if it more closely defines the master plumber as one both having a definite place of business and as having passed the examination (if such is given) on which the license is based. The following definition takes both these considerations into account:

"Master Plumber.—Master plumber within the meaning of these rules and regulations is a person who holds a master plumber's license, obtained only after having successfully passed an examination given by the Board of Plumbing Examiners of this city, and who represents the industry of plumbing and who engages in or works at the plumbing business on his own account or directs other workmen in this trade, and who has an established place of business other than his residence or the buildings on which he may be employed. This definition is not intended, however, to prevent a master plumber from having his place of business and dwelling combined, provided it fronts on a public thoroughfare and with proper sign displayed."

O. M. C. may make up his own definition if he desires, using from these four definitions such statements as may cover the particular local needs.

◆

About the Installation of Plumbing by a Master Plumber from Another City

Editor, DOMESTIC ENGINEERING:—A plumbing code has recently been enacted for our town, and a plumbing board appointed, of which I am a member.

I would like to know whether the plumbing inspector, who is also a member, has authority to give an out-of-town plumber a permit to do work, and to examine him, without consulting the board.

Can this outside plumber come into our town and do work on a license fee of $10, the same amount that I pay, a resident and tax payer? I think his fee should be $15 or $25.

Can an outsider, who claims to have done a few jobs in the town before the code went into effect, call the place his place of business?

Is this license, issued by the inspector, legal without the signature of the other members?

What are the duties of the inspector?

Would you think if I live in the town and pay taxes that I would have to pay $10 to work in it each year?

There are already six regular plumbers in town, quite enough without outside ones coming in.

New Jersey. W. E.

Unconsciously, no doubt, W. E. has touched upon several of the tender spots that are more or less common to the plumbing business everywhere. His last paragraph shows clearly where the shoe pinches.

As we look at it, answers to his questions would depend largely on the provisions made in the plumbing code on these subjects.

Without knowing both sides of the question, it would seem to us that the plumbing inspector had exceeded his authority unless the board had previously delegated authority to examine applicants and issue licenses and permits to him.

Generally examinations are conducted by the board, rather than by the inspector.

Having passed his examination and complied with all requirements, the "outsider" has the same rights as W. E. himself. It is not at all a question as to an outsider paying a larger license fee than one of the town plumbers, but rather it is a question as to what the plumbing regulations say on the subject.

This is a free country, and the outsider has as much right to work in another town than his own as W. E. would have, and we wonder whether W. E. would not feel it an injustice if he could not go into a neighboring town and install a plumbing job.

New Jersey is the last place in the country where plumbers restrict their operations to their own locality. We know a Newark plumbing concern that holds 14 licenses in other towns in New Jersey, outside Newark.

The fact that this outsider has formerly done a few jobs in W. E.'s town certainly does not give him citizenship there.

Whether the license signed by the inspector only is legal we do not know. This would depend on what the plumbing regulations say on the subject, or if they say nothing, then it depends on what regulations the board has adopted. If the board has never adopted regulations on the subject, then it is time they did, to forestall any similar confusion in the future.

We believe the duties of a plumbing inspector generally include (1) examination and approval of plans and specifications, (2) issuing of permits and collecting of fees, (3) inspection of plumbing and making of tests, (4) issuing certificates of approval of completed work, (5) arrest and prosecution of offenders, (6) keeping of office records and reports and (7) advisory service to the public concerning matters relating to plumbing. Often the plumbing inspector acts as clerk of the board.

We would certainly think that W. E. would get $10 worth of benefit from the paying of $10 each year for his plumbing license. We would advise him to look at the entire subject in a liberal way, and to use his influence in supporting the plumbing code and its effective and just enforcement.

◆

Comments on Refrigerator Connections

Editor, DOMESTIC ENGINEERING:—I wish to thank you for your moderation in your criticism of my iconoclastic plumbing plan.

Have you ever personally known of a case where there was a complaint of sewer smell or gas in the room, and it was shown that defective venting was the cause?

As to refrigerators, the refrigerators in my drawing are not connected direct. There should always be a break at the refrigerator, and a trap opening at the floor level, large enough to be cleaned.

Personally, I should much prefer food from a refrigerator connected as in my plan, with drain flushed several times a day, to one connected to a pipe which in practice is never flushed until it stops up, and has an opening at the bottom to allow the air to enter and become as foul as any sewer gas from the slime which lines the pipe, as it goes up. It would be best to have the legs of the trap deeper than common, so that should the trap siphon, the run-back would replace the seal.

The part of San Francisco in which I am located has many old houses with dipped black pipe vents, all stopped.

One of the master plumbers of this neighborhood with forty-three years of experience has never seen a siphoned trap or known one to cause any annoyance.

One of my journeymen with ten years' experience as a master plumber in a rural town, where hundreds of jobs were unvented, has never known of a complaint that the traps failed to protect the fixtures. So you see, I am not alone in my contention.

As to afterfills on closet tanks, one-half the old low tanks in my neighborhood have the afterfill tube broken off. And yet although all water closets siphon, there are no complaints.

California. J. G.

According to the dictionary, an iconoclast is an "image breaker." We take it, then, that J. G. feels that in what he has written he is trying to break down

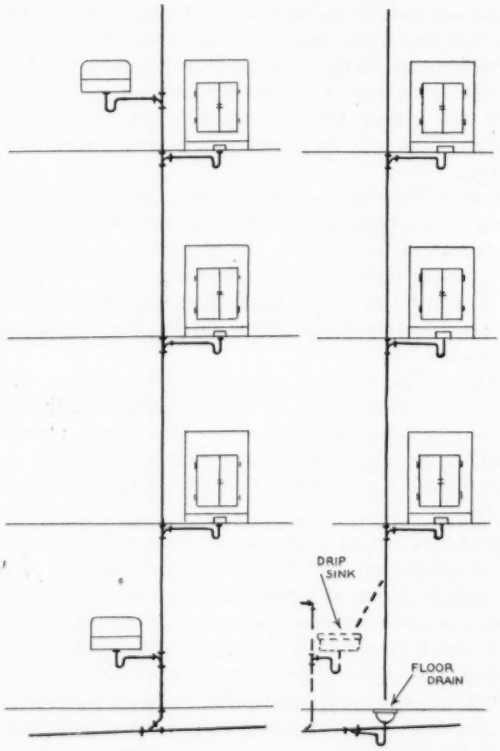


Fig. 1 Fig. 2

the orthodox, accepted practice of venting the plumbing system. His letter refers to Fig. 18, page 92, of the October 18th issue of DOMESTIC ENGINEERING.

There seem to be two extremes in present-day plumbing practice regarding the practice of venting. There are those who would like to see all venting done away with, except the carrying of stacks through the roof, and there are those who seem to favor the individual venting of every last trap on the plumbing system, without the slightest regard to the actual absence of all possibility of siphonage.

Our own position, which we believe to be that of a very large majority of those who desire to install cor-

rect and safe plumbing, is to overcome in every instance all possibility of the siphonage of trap seals. According to our opinion, that result can be accomplished only by the venting of those traps which may by any possible circumstance be siphoned.

A volume could be written in replying to J. G.'s question in the second paragraph of his letter. Certainly every plumber of experience knows of instances of trap siphonage, and every one of those instances is due to entire lack of venting or to the failure of the vent through stoppage, dipping or trapping of the vent pipe. The very fact of siphonage shows that a vacuum has been created on the sewer side of the trap seal, and such an occurrence is absolutely impossible with an open vent of sufficient size and properly installed.

We are entirely unable to account for any plumber's experience of forty-three years in which he has never known of the siphoning of a fixture trap. This might be possible if he had been associated with modern plumbing in a high class community, where high-grade plumbing was the rule, but of course that sort of experience could not possibly extend forty-three years back.

In recent years science has been able to very largely remove the fear that people had always held, of the fatal results of the entrance of sewer gas into dwellings. We should be most grateful for the removal of this fear. At the same time, it has never been proved that an atmosphere laden with sewer and drain air and odors is so favorable to health and contentment as pure air. In fact, it is well known that impure air reduces vitality, even though not producing fatal results.

To sum the situation up, the people of this country are too much accustomed to good living conditions to have any desire for any brand of plumbing that does not offer the best possible living conditions, and those conditions include pure air in dwellings.

The accompanying illustration, Fig. 1, shows the refrigerator connections referred to.

To be known as a direct connection, the refrigerator trap does not have to be directly attached to the outlet from the refrigerator. The fact that the refrigerator sack connects directly into the drainage system makes it a direct connection, as compared with the proper kind of connection, shown in Fig. 2, in which the line of refrigerators discharges indirectly to the drainage system. This illustration shows the two most common indirect refrigerator connections.

To show the almost universal feeling against the direct connection of refrigerator wastes to the drainage system, we can say that in a study of about 450 plumbing codes not over a half dozen at the outside would allow anything but an indirect connection.

Flushing of the refrigerator line is certainly a fine idea, but not by means of a lavatory connection into the refrigerator stack. Along with the sluggish waste that comes from a refrigerator, we would think that a lavatory waste carrying more or less lint, hair, etc., in it would not be the remedy that J. G. thinks it to be. If his lavatory were only a drinking fountain, we would look at the matter differently

In this case, only clean water would be discharged into the refrigerator waste, free from lint, hair and any other solids common to lavatory wastes. Also, there would be no danger of a stoppage in the refrigerator waste.

The Hotstream HEATS IN A HURRY TRADE MARK REG. WATER-HEATER

KEROSENE HEATERS—WICK BURNER TYPE

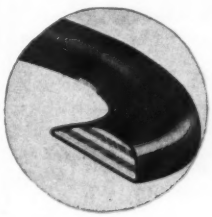
Quadruple coils of copper and the patented Kerogas Burner (Hotstream is the only Water Heater licensed to use it) insure the greatest efficiency.

Lights instantly at the touch of a match—is noiseless, sootless and extremely economical.

Made in 3 sizes—write for complete information.

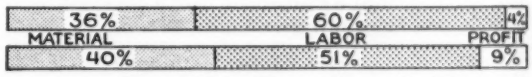
THE HOTSTREAM HEATER COMPANY
7800 Finney Ave. "Makers of Heaters that Heat" Cleveland, Ohio

LAMINATED Construction
gives big sales advantage



Laminated construction, exclusive with Brunswick, gives super-strength that defies abuse, enabling us to guarantee Whale-bone-ite Toilet Seats for the life of the building. They end replacement expense once for all. Handsome, permanent finish never wears off seat or hinge. Easy to clean. Always sanitary. Send for free cross-section and complete information of our sales proposition and co-operation. The Brunswick-Balke-Collender Co. Dept. F-28, 623 South Wabash Ave., Chicago.

WHALE-BONE-ITE LAMINATED TOILET SEATS MADE BY Brunswick



How do You Spend Yours?

TWO contractors were handed $100 each to install valves on two identical jobs. Any remaining surplus would be theirs.

One decided to save money on materials. So he spent $36 for valves which cost him $60 to install. This left him a profit of $4.

The other decided that good materials would cost less to install so he spent $40 for O-B valves and they cost only $51 to install. This left him a profit of $9. How do you spend yours?

Ohio Brass valves are so designed and machined as to give "an extra profit in the make-up".

Ohio Brass Co.
1189-V Mansfield, Ohio

ASK US.....

Thousands of Dollars Profit from a Single Shower Head

how you can make money quickly selling Speakman Anystream Self-Cleaning Shower Heads.

SPEAKMAN CO.
Wilmington Delaware

COUPLING FIG 1002 C
for
COPPER TUBE PLUMBING
only 3 FITTINGS
TEE
UNION FIG 1001 C
ANDERSON COUPLINGS
In this drawing, showing typical joints in a Copper Tube Plumbing Installation, it is easy to note that only Three different type Anderson Couplings are necessary for the entire job.
Save money—save time—do better work. Sell Copper Tube Plumbing and Anderson Couplings.
Write us for catalogue.
UNION FIG 1001 C
TEE
COUPLING FIG 1002 C
TEE
UNION FIG 1001 C
THE CHAPMAN VALVE MANUFACTURING CO.
INDIAN ORCHARD - MASS.

Questions Answered and Discussed by Readers

How the Question Was Answered

The following question was asked in the issue of December 13, and the accompanying answers are by readers:

Foul odors indicate a leakage of sewer gas somewhere in an old sewer-connected house. If the odor is from sewer gas, how would you proceed to prove it to the owner by showing him exactly where the odor comes from? Explain the process.

How Would You Answer This Question?

A 12-room, 2-story residence is to be warmed by a sealed hot water system. Fifty feet away and 20 ft. lower than the residence boiler is a 2-car garage to be heated from this boiler. How would you install the piping and radiators from the house to the garage?

Answers based upon your experience, and suitable, will be paid for and published in the February 7 issue.

1

TO determine whether foul odors in a building come from sewer gas or not there is no better test than the smoke test. It is easily applied to the plumbing by a plumber. The smoke testing machine is simple in construction, easy to operate, and its cost is small compared with its long life and the good work it can do. It is the writer's opinion that every up-to-date plumber's shop should have one or more smoke testers as part of the working equipment, not only for testing new work when finished, but also for testing the old plumbing where there is a suspicion that sewer gas gets into the building, and for locating the runs of concealed drains and other plumbing lines, etc.

The question at issue is opportune in this respect. It indicates an instance in which the smoke test is par-excellence because the smoke will flow out of sewer gas leaks in the plumbing and will show them up very clearly. There will be no guesswork if a smoke test is applied to the job in question. Every leak that permits sewer gas to enter the building can be located by such a test, if properly applied.

Just how the test should be applied to this building will depend somewhat upon conditions. If there is a main drain trap on the system the test may be applied at the fresh air inlet something like Fig. 1. The grating is removed from the inlet. The smoke hose from the machine is inserted into the inlet pipe and made air tight with clay, putty, or a regular test plug. All water is shut off from the system during the test and the closet is flushed to empty the tank so that no one in the house can flush the closet while the test is on. Then the machine is started. Smoke is pumped into the house drain-

age system until it blows from each open vent at the roof, or elsewhere. Then each vent is sealed air tight either by an ordinary test plug used for water tests or by a sheet lead cap puttied down on top of the vent. As the smoke pressure required is equivalent to only a

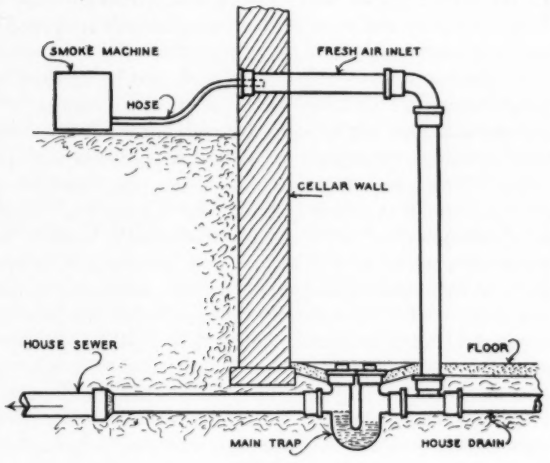


Fig. 1

1-in. water column, either of these stoppers will serve the purpose.

Should there be no main drain trap to prevent the smoke from blowing through to the street sewer, it will be necessary to plug the main drain at some suitable point. Sometimes it is rather difficult to find a suitable place to insert this plug. But if there is a clean-out cap on the house drain near the point where it goes out through the wall, as there ought to be, a bladder stopper may be inserted as shown in Fig. 2 (A). It is similar

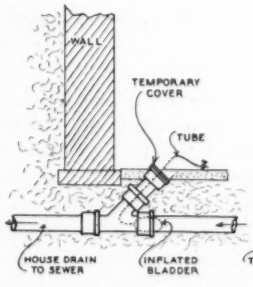


Fig. 2A

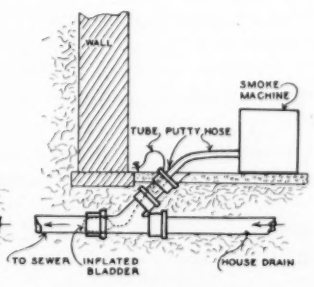


Fig. 2B

to an ordinary football bladder, of rubber, which is inserted in the house drain as shown and blown up tight by mouth or a small pump. This type of closure is satisfactory if the smoke machine can be applied at a roof vent, which is very convenient if the roof is flat. But if the machine cannot be applied to a roof vent, then it may be applied at the clean-out as shown in Fig. 2 (B), provided care is taken to let no smoke get into the house from the machine.

The main object of the test is to fill the entire house drainage system with smoke and work the pressure up to 1 in. of water, which is not enough to blow the seal of a good trap, but enough to blow smoke into the building through all sewer gas leaks in the drainage system, and to show up all traps that are not properly sealed,

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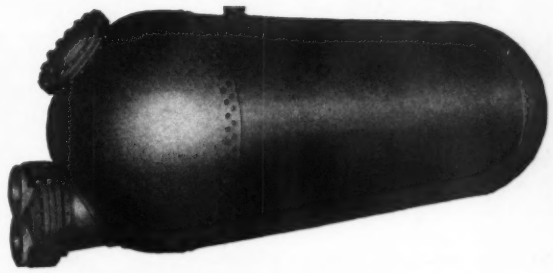

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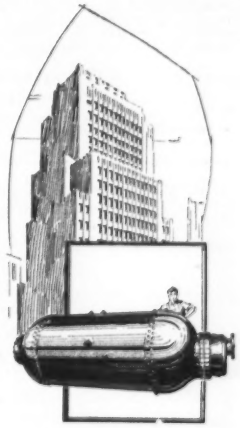

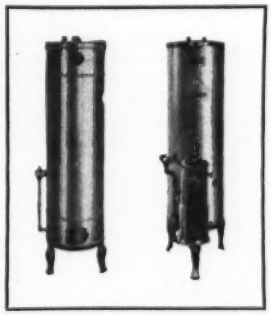

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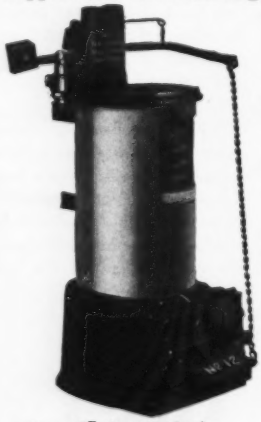

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BOSTON NEW YORK PHILADELPHIA

and indeed all other weak or defective spots where sewer gas can flow into the building.

New York. T. T.

2

IF the odor is from sewer gas, it would be very easy to prove this to the owner by showing him exactly where the odor comes from.

In this case the peppermint test should be applied, as peppermint will disclose small leaks which smoke will not show. This test is made by pouring into one of the roof openings a mixture of oil of peppermint and hot water. This mixture is made by using one ounce of oil of peppermint to one-half gallon of hot water. About six fluid ounces of oil of peppermint should be used for a line of pipe up to five stories and basement in height, and for each additional five stories two additional ounces are to be used. The opening through which the mixture is poured should be closed tightly with a plug. This test should be applied with a great deal of care or it is apt to be misleading and give entirely erroneous indications. All traps should be filled with water and all other openings tightly closed. All windows and doors throughout the building should be kept closed and no fixture should be flushed during the test. The mixture of oil of peppermint and water will then flow to every portion of the system of piping. The fumes of peppermint will penetrate through any leaks, and they can be detected by the odor of the peppermint present. The person pouring the peppermint should not enter the building until it has been thoroughly inspected by a second person. When the leak through which the gas escapes is detected it should be shown to the owner and emphasized to him that the health and lives of the occupants of the building are in a great measure depended upon the character of the plumbing system.

Cambridge Springs, Pa. Walter J. Kilarski.

3

THE smoke test, in my opinion, is the most suitable and gives best results. This is made in systems, where there is no house trap, by plugging the drain through the main sewer cleanout located on the sewer where it enters the building and by attaching the smoke testing machine to the most suitable cleanout. Where there is a house trap it can be connected to the fresh air pipe outside. The smoke is injected from the machine into the system. When the whole system is fully charged and sufficient smoke is escaping from the pipe terminals at the roof, these openings are plugged. Any terminal where smoke does not come out indicates that the vent pipe is plugged. This stoppage is often the cause of trap syphonage of fixtures, there being no air admitted to break any syphonic action created by the discharge of this fixture. When trap syphonage occurs, then the odor of the different gases present in the systems are noticed. The most common defects, found by such a test, that are responsible for complaints of this type, are: holes cut in pipes to clear stoppages and not properly repaired; defective connections at floor flanges of water closet bowls; broken fittings and damaged lead waste pipe due to settlement of the building and lead pipes broken at solder joints, which breaks occur especially where extremely hot water is used, causing exces-

sive expansion and contraction of the lead; corroded vent pipes and defective joints on the house sewer between the house and the common sewer on the street. The last mentioned defect is discovered by a test made to this section by itself. I have found on different occasions the special garage trap tampered with, the dip pipe at the catch basin broken or the cleanout cover removed, thus allowing the waste water, heavily laden with gasoline and oil, to drain off into the sewer and allow sewer air access to the building. The following cases are those that came under my own observation.

A complaint was registered by the owner of a large residence, to the contracting plumber who installed the plumbing some time after the job was completed, of an offensive odor in one of the rooms on the second floor, north side. There was no plumbing on this side of the building. There was a 3-in. rain water pipe outside draining the roof and this pipe had an open ornamental head into which a pipe from the eave trough discharged. This head was a little lower than the top of the window. The 3-in. pipe extended down the outside wall and under the basement floor, discharging into the catch basin or floor drain. Into this same catch basin other rain water pipes discharged, as well as four leads from weeping drains which were laid along the outside of the foundation wall to drain off surface water that lay around the wall. The contracting plumber applied the smoke test on several occasions with a view to locating the cause of the odor, but each time the drum of the smoke chamber of the testing machine stood stationary, indicating that there was no defect in the plumbing inside. This seemed to pacify the owner, but only for a short time. At last the complaint was registered at the office of the plumbing inspector. It happened to be in the district under my observation. After going over the building with the plumber we decided to apply the test to the plumbing inside, and this was done, but with the same result. We then changed the test and applied it to the sewer connection—that is the section between the house and the common sewer on the street. The smoke was injected through the sewer cleanout where the sewer enters the building, this pipe was filled with smoke, the machine was shut off and left for some time.

An inspection was then made of the four inlets from the weeping drain and the smoke was found to be coming in from the lead from the section of weeping drains on the same wall where the sewer enters the basement. The smoke then passed over the catch basin into the local rain water drain, up the three-inch rain water pipe, out the ornamental head and in through the window of the room where the offensive odor was experienced. The conclusion was then arrived at that there was a defect on the tile sewer connection somewhere outside and the smoke was forced out at the defect by the pressure in the sewer, and traveled along the outside of the pipe through the back filled earth and rough stone and into the weeping drains along the foundation wall in through the lead and as previously described. The sewer connection was then uncovered and a broken joint discovered. When this was repaired the offensive odor in the room ceased and no further complaint was made. These are two outstanding cases of odors of illuminating gas experienced in dwellings. These were traced by the same procedure (smoke test-

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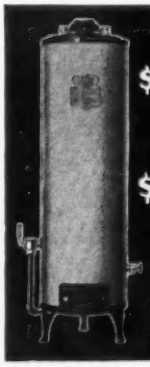

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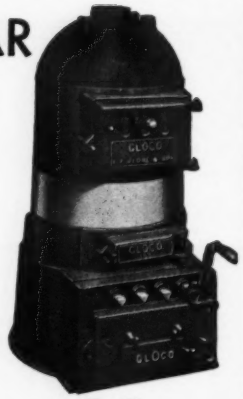

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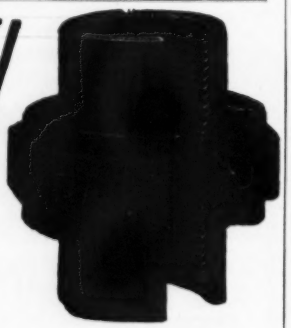

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ing) to waste from gas producing plants finding their way into the common sewers and circulating along the same up the private connections through defects and finally into the building as described. There has been several cases of gasoline odors discovered in the same way. The same procedure was followed, with the same result.

J. McNeill.

Winnipeg, Canada.

This Statement Showed a Profit

(Continued from Page 39)

compared with the average figure for a business of this volume. I doubt whether the owners could *buy* this service for as little as they value it on the books. It looks as if additional profits are shown at the expense of low salaries taken by the owners of the business. While this may be as broad as it is long, it is not a fair test of actual business conditions.

The firm is fortunate in its low truck expense; though here, again, the wages item seems rather low. In fact, this item all through seems unusually low. Not being familiar with labor conditions and standards in that part of the country, however, no inference should be drawn from this remark. I merely call attention to the fact it is below the standard as shown by the Bureau report.

Our correspondent is evidently a believer in advertising. He spends twice as much in advertising as the average plumber; and for this he is to be commended.

		Our Own	Bureau's
Salaries of owners	4,192.88	2.17%	5.4%
Office salaries	2,509.65		
Drivers' wages	1,088.05	1.88	2.1
Truck expense	3,223.49		
Insur. Liab. & Auto	666.55		
Depreciation on trucks	1,756.03		
Salesmen & Stockmen	1,689.46	0.59	0.4
Rent	763.91	0.27	2.3
Insurance, Fire	94.12	0.16	0.4
Insurance, Life	379.28		
Taxes, State and City	461.07	0.17	0.4
Income	45.81		
Tel. & Tel., & Postage	386.01	0.5	0.6
Stationery & Office Exp.	298.65		
Light & Power	476.23		
Traveling	759.00		
Advertising	3,204.95	1.12	0.6

I have stated before that no financial or operating statement tells the whole story of a business. There are conditions governing certain factors in every business which cannot be reflected on the financial statement. But on its face value, this statement is what accountants would call very healthy. It is stimulating; it arouses curiosity. Our friends in the West have accomplished something that every plumber would like to achieve . . . a very satisfactory reduction in operating costs while increasing his sales. The operating statement does not show us *how* it has been done; it does show that it *can* be done.

Mr. Peel will be glad to analyze the statements of any reader without charge, of course, and neither name nor town will be used.

Are You Doing Government Work?

(Continued from Page 87)

whether a fixture so installed may or may not be said to be vented by the circuit vent which serves the line into which it connects.

The friends of this method of installing elevated fixtures on a circuit-vented or loop-vented line, main-

The pack sink in the medical building

tain that the circuit or loop vent, which is installed primarily to vent the floor-outlet fixtures, also is an effective vent for the elevated fixtures on that line. We do not agree in any way with this position regarding the matter, and maintain that the lavatory in Fig. 9 is no more vented than it would be if the circuit vent were omitted.

As we have pointed out in the past, a vent pipe is used for the purpose of bringing to the fixture trap a supply of air, in order to prevent or overcome any tendency to siphon the contents of the trap.

Siphonage of a trap seal results from the formation of vacuum on the outlet side of the trap. In order to be effective in overcoming the formation of vacuum, air must be admitted to the outlet as near the crown of the trap as possible. The inlet from the fixture forms the short leg of a siphon, and the outlet forms the long leg. Air must be admitted to the outlet not lower than the level of the bottom of the short arm if the most effective prevention of siphonage is to be obtained.

Utility Space

From the above reasoning it is obvious that the cir-

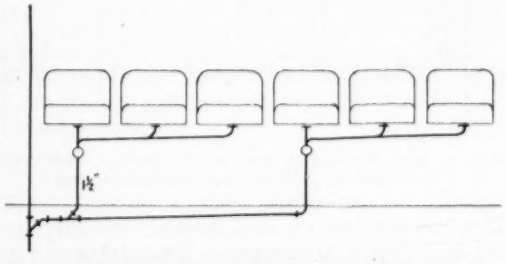

Fig. 7—Method of connecting the waste and vent piping for a group of six fixtures in the patients' toilet room shown on the plan in Fig. 3

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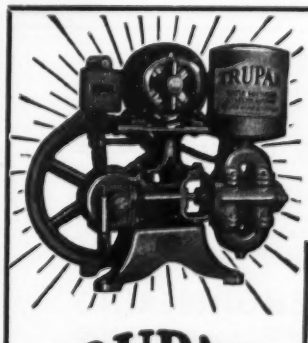

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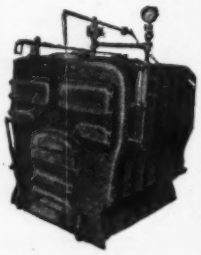
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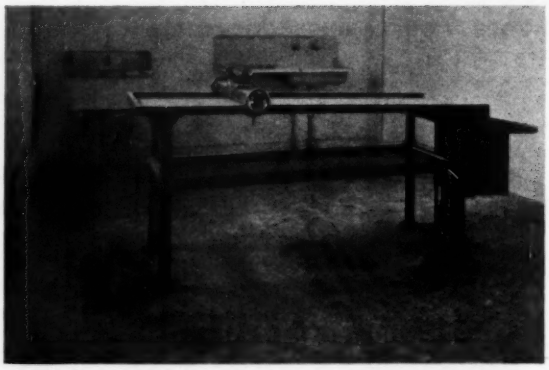


Fixtures in the post mortem room

cuit vent is not in any way a vent for the lavatory in Fig. 9.

A point that we have not yet mentioned concerning the plumbing installations in these government hospitals for war veterans, is that in most instances utility spaces are provided back of fixtures or groups of fixtures, in which fixture connections, both waste and supply, are exposed to view and entirely accessible in the event of repairs. These spaces are reached

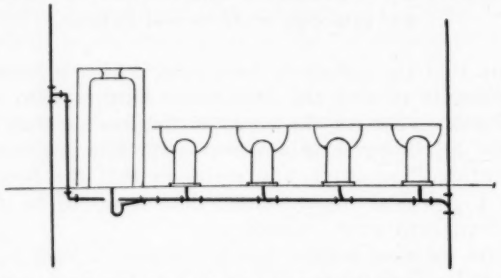


Fig. 8—Example of circuit venting employed in the hospital

through narrow doors and are shown in Fig. 3 in connection with the patients' toilet room, and in the case of smaller toilet rooms.

Plumbing access doors and closets are items which should never be overlooked in original designs. Too many cannot be installed as anyone will agree who has been called out on a repair or remodeling job.

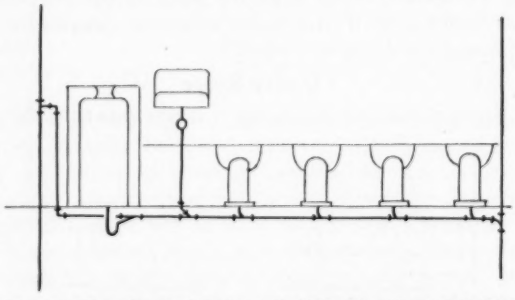


Fig. 9—The elevated fixture in this circuit vented line is served by an unvented non-siphon trap

In a third article we shall take up the plumbing in other buildings connected with the veterans' hospital, and with the general sewage plan of piping outside the buildings.

New Data on Figuring Fixtures in Office Buildings

(Continued from Page 42)

rugged, convenient, noiseless and easily repaired or replaced as possible.

General Fixture Requirements

The leading real estate management companies of the country last year completed an extensive survey to arrive at a correct and definite basis on which to compute the numbers of fixtures to be used in business buildings. This survey consisted of an inquiry into tenant complaints received, observation of conditions in particular buildings in different locations and sections, consultation with recognized sanitary engineers and contractors, and a definite count of passenger elevator traffic throughout the business day. The net result is a recapitulation based on a ratio of rentable area to plumbing fixtures. Results vary as between high buildings and large low buildings, as well as between high rental space and cheaper space in more densely populated buildings. It is not practical to set forth all the modifying conditions and slight variations, so the general figures are given as entirely conservative findings in Table 2.

TABLE 2

Office Buildings

1—Building up to 6 stories in height with floor areas from 5,000 sq. ft. to 30,000 sq. ft. rentable area, provide one water closet for each 20 to 25 occupants, based on a population of one person per 150 to 165 sq. ft. of rentable area.

2—Building up to 20 stories in height with floor areas from 10,000 sq. ft. to 50,000 sq. ft. rentable area provide one water closet for each 18 to 22 occupants, based on a population of one person per 125 sq. ft. of area.

3—Buildings from 30 to 70 stories in height with floor areas from 20,000 sq. ft. to 60,000 sq. ft. rentable area at the base floors provide one water closet for each 16 to 20 occupants based on a population of one person per 80 sq. ft. of rentable area up to 15th floor, one person per 90 sq. ft. of rentable area from 16th to 34th floors and one person per 100 sq. ft. of rentable area above 34th floor.

4—Divide fixtures on basis of total population being three-fifths male and two-fifths female.

5—Provide in men's general tenant toilet rooms one urinal (pedestal type preferred) for each three or less water closets and one lavatory for each four or less water closets. In women's toilets provide lavatories on same basis as men's rooms. In no case have less than two water closets in a toilet room.

6—Provide one slop sink in separate closet (tiled walls and well ventilated) for each 8,000 sq. ft. of space on large floors and 5,000 sq. ft. or less on smaller floors.

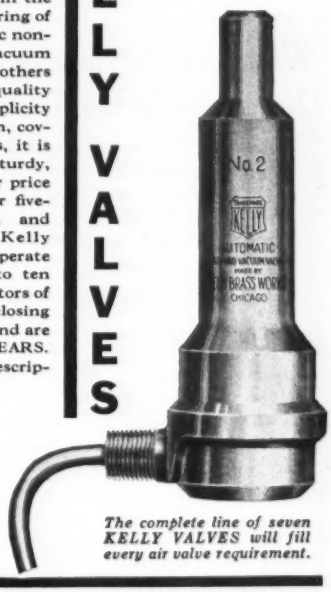
These rules correctly interpreted, skillfully planned and well designed and constructed will result in satisfied tenants, low initial and carrying charges, provisions for reasonable growth and modern sanitary facilities in our "business homes."

◆

In order to reduce the friction pressure loss in any contemplated installation involving the circulation of a definite number of pounds of liquid per unit of time it is essential to circulate the liquid at the highest permissible temperature with the lowest possible specific gravity and at a low velocity.

KELLY VALVES

The achievement of over thirty-eight years of experience in the designing and manufacturing of air valves, Kelly automatic non-adjustable steam, air or vacuum valves stand out above all others as the most reliable quality valve. Yet due to the simplicity of their inner construction, covered by our basic patents, it is possible to offer you this sturdy, perfected valve at a lower price than asked for any other five-year guaranteed steam and vacuum tested valve. Kelly Valves are fool-proof—operate under all pressures up to ten pounds, venting the radiators of accumulated air and closing against steam or water—and are guaranteed for FIVE YEARS. Write today for our new descriptive Price List No. 30.



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NEW YORK

Woman's Page

What the Auxiliaries Did at Christmas Time

In the true spirit of Christmas, many of the auxiliaries undertook relief for the needy, and entertained at Christmas parties. We have grouped these stories together here because of their lively and timely interest.

Dayton Auxiliary Fills Christmas Baskets

On Thursday, December 18, twenty-seven members of the Ladies Auxiliary to the Master Plumbers Association of Dayton, Ohio, met in the Industrial building for their business session, following a luncheon at the Shrine club. The luncheon table was beautifully decorated with red candles and red crepe paper flowers. The flowers were later sent to the children's ward of the Miami hospital.

Following a short business session, the members exchanged gifts. Each person contributed to the filling of the Christmas baskets and with the money pledged by the auxiliary and that given by the members of the master plumbers' association, $128 was collected. This money was used to fill additional baskets that were distributed to families of needy journeymen.

The committee in charge of the distribution of the baskets consisted of Mrs. William Haas, Mrs. Myers, Mrs. Satterthwaite, Mrs. Saunders, Mrs. Kiem, Mrs. Schmaker and Mrs. Louis Blank. A social hour of cards followed.

North Hudson Auxiliary Gives Children's Party

Santa Claus and the toys with which he delighted the children formed the chief attraction at the Christmas party given on December 26, 1930, by the Women's Auxiliary to the Master Plumbers' Association of North Hudson, N. J., at the Capitol restaurant, Union City. Nicholas Triani, dressed as St. Nicholas, to the tune of "Jingle Bells," played by the orchestra, burst into the room, darkened save for a red spotlight focused on a prettily decorated Christmas tree, amid a chorus of gleeful shouts from the thirty-four children present. The smaller children, mystified, hesitatingly responded to the call of their names by Santa as he passed out a present to each one, together with candy and fruit. Later he further thrilled the little tots by playing ring-around-a-rosie with them.

Ladies attending the barbecue at the convention of the Georgia Master Plumbers' Association

The grownups enjoyed dancing before and after the children's party. Ice cream and cake were served before the guests departed. Mrs. Vincent Farrelly was in charge of the arrangements and had the assistance of Mrs. William Borg, Mrs. Charles Steller, Mrs. Edward Seitz and Mrs. Edward Muth.

Lively Christmas Party Held at Racine, Wis.

The annual Christmas party and dinner of the Women's Auxiliary to the South Shore Association of Master Plumbers of Racine, Wis., was held on December 13 at the Racine hotel. Following the turkey dinner games were played and presents exchanged, every one receiving a gift.

Much enjoyment was gotten from these presents as they were exceedingly comical. The decorations were in Christmas colors, the center piece on the table being a Christmas tree beautifully trimmed. Short talks by Messrs. A. E. Johnson, J. Neary, J. Feiner and H. J. Smith were given. This affair was in the nature of a progressive party. After the dinner and a few hours of entertainment at the hotel, the party motored to the Breaker's lodge and enjoyed dancing for the rest of the evening. Music was furnished by Mr. Fred Heiss and Mrs. L. C. Pugh.

Those attending the Christmas affair were Mr. and Mrs. H. J. Smith, Mr. and Mrs. A. Steinhoff, Mr. and Mrs. J. Feiner, Mr. and Mrs. L. C. Pugh, Mr. and Mrs. F. DeLonge, Mr. and Mrs. L. Norup, Mr. and Mrs. O. Beetcher, Mr. and Mrs. A. Brunk, Mr. and Mrs. J. A. Murphy, and Mr. William Pugh. Out of town guests were: Mr. and Mrs. A. E. Johnson of West Allis, Mr. and Mrs. H. Robb, Mr. and Mrs. J. H. Neary, Mr. and Mrs. W. P. Wallace, and Mrs. V. J. Robb all of South Milwaukee.

The committee in charge of this lively party consisted of Mrs. J. Feiner, Mrs. F. DeLonge, Mrs. Al Brunk, Mrs. L. C. Pugh and Mrs. J. A. Murphy.

Alameda County Auxiliary Entertains With Yule Party

The spirit of Christmas, made all the more timely by the presence of from thirty to forty children, was the keynote of a highly successful holiday party given by the members of the Ladies' Auxiliary to the Merchant Plumbers' Association of Alameda County to their husbands and members of the association at Plumbers hall, 538 Twenty-fourth street, Oakland, Calif., on the night of December 20.

A delightful program was provided by the children, which included the Durant trio with the piano, violin and flute, piano solos by Eunice Hood, Mildred Hammond and Eunice Lawrence, a recitation by Lois Bryant, a vocal duet by Carmen and Juanita Johnson, and another by Marion and Marjorie Burgelin, a vocal trio made up of Donald Durant, Woodward Todd, and Frederick Victor, an harmonica solo by Frank Mero, and a Christmas stocking play in which ten of the younger children took part. George Stoddard, Berkeley master plumber, made Santa Claus a very real person to the youngsters when he staggered in under a heavy pack of toys—one for each of them. At the conclusion of the program ice cream and

cake were served the children, while their parents enjoyed sandwiches, cake and coffee at the tastefully decorated banquet table. The total attendance was close to one hundred and fifty.

Mrs. Harry LeGassick headed the committee on arrangements, and was ably assisted by Mesdames L. J. Kruse, W. D. Evans, D. W. Durant and B. T. Schullerts.

Schenectady Auxiliary Holds Monthly Meeting

The Women's Auxiliary to the Schenectady Master Plumbers Association held its monthly meeting on December 11, at the store of Mr. and Mrs. W. Atkins. Minutes of the last meeting were read to the 12 members present and immediately the women got busy making Christmas stockings to be filled with candy and nuts. There were fifty stockings made. Each member turned in one or more scrap books which will be sent with the stockings to children in the hospital. Ten dollars were donated for charity for Christmas and Mrs. Chris Roony was elected to look up a needy family. The meeting, which was enjoyed by every one present, was closed at eleven o'clock. The next meeting will be held at the Atkins' store also.

Christmas Party Enjoyed by Kalamazoo Auxiliary

A lovely Christmas party was held at the home of Mrs. Roy P. Kromdyke, 501 Second street, on December 15, for the members of the Women's Auxiliary to the Kalamazoo, Mich., Master Plumbers Association. Everyone brought a gift and a Christmas poem or short story to read. Later bunco was played, honors going to Mrs. Herman Wilk. A dainty two-course luncheon was served in the dining room, which was beautifully decorated in a Christmas color scheme.

Canton, Ohio Auxiliary Elects Officers

The following officers have been elected for the ensuing year by the members of the Women's Auxiliary to the Canton, Ohio, Master Plumbers Association: Mrs. William Zernechel, president; Mrs. Herman Grabowsky, vice president; Mrs. John Roth, secretary; and Mrs. A. W. Baum, treasurer.

Orange, N. J. Auxiliary Holds Big Xmas Party

The Women's Auxiliary to the Orange, N. J., Master Plumbers Association recently elected the following officers: President, Mrs. J. Daum; vice president, Miss Matilda Berg; secretary, Mrs. Helen Berg; corresponding secretary, Mrs. Eva Williams; treasurer, Mrs. Alma Brenner, sergeant-at-arms, Mrs. Florence Fricke; trustees, Mesdames Amelia Lehrer, Mable Trapper, Laura Kunz and Georgia Krauss.

One hundred and fifty people attended the Christmas

Left to right: Mrs. L. L. Craft, Mrs. D. T. Craft, Mrs. E. B. Hungate of Norfolk. Photos taken at convention of Virginia Associated Plumbing and Heating Contractors

OVERTON ROOF FLASHINGS
EXTRA HEAVY OR STANDARD

It's all the same to the Overton Roof Flashing—no matter what the pipe, it goes on as easily and as leakproof as those requiring much adjustment.

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Milwaukee, Wisconsin, U. S. A.

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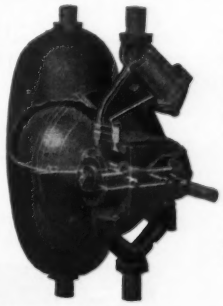

THERE are no "if's" and "but's" about the new McDonnell Self-Cleaning Duplex Feeder. It keeps the boiler water line where it belongs at all times, under all conditions. The self-cleaning valves stay new even in the hardest water. It makes good your guaranty on every installation. The new booklet tells why. Your copy is ready.

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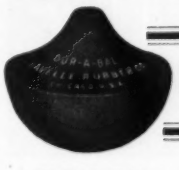

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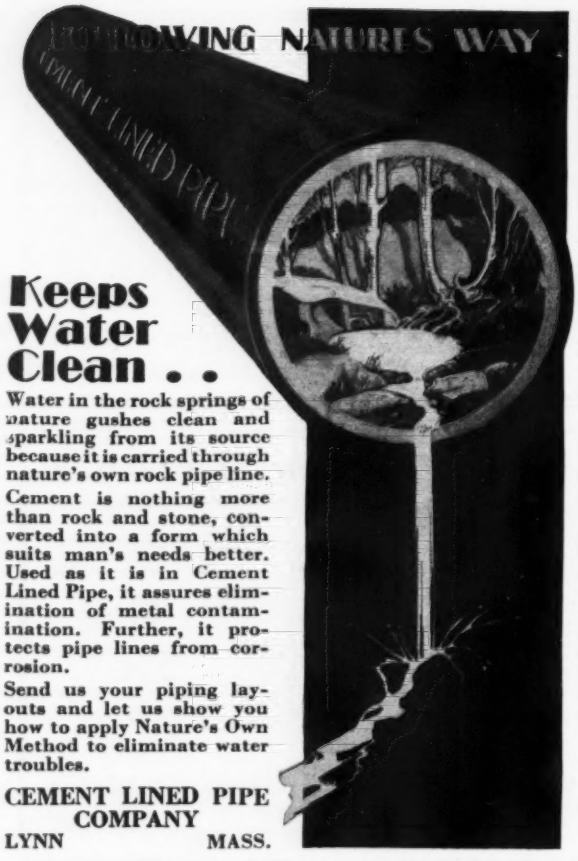

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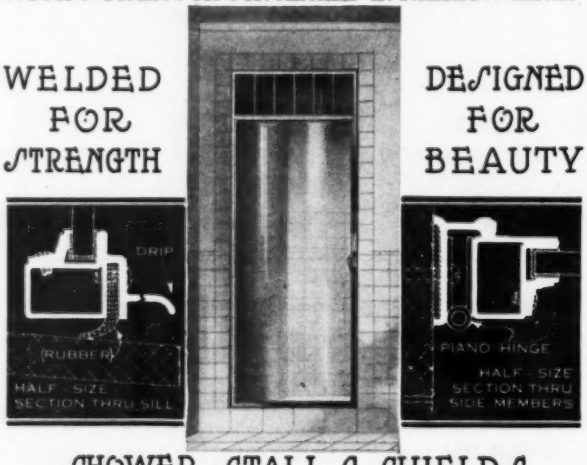

SHOWER STALLS, SHIELDS, AND BATH ENCLOSURES
IN CHROMIUM, DUPLEX NICKEL PLATE, NICKEL SILVER AND SATIN BRONZE

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party of the auxiliary held on December 19. The party was held at Walnut hall, Main and Walnut streets, E. Orange. It was a regular Christmas party with a tree and decorations—and even a Santa Claus to distribute the gifts. The auxiliary was honored with the presence of the New Jersey state president, A. F. Berg; first vice president, J. O. Lewis; state treasurer, George Werner; state secretary, J. Berg; Mrs. J. J. Corcoran, president of the New Jersey State Women's Auxiliary, and state secretary, Mrs. Louis Komoski.

Indianapolis Auxiliary Elects Officers

The regular monthly meeting of the Women's Auxiliary to the Merchant Plumbers Association of Indianapolis, Ind., was held at the home of Mrs. L. E. Isley on Friday, December 12. Mrs. George Watson, president of the auxiliary, stated that Joseph Hildebrand of the Plumbing and Heating Industries Bureau would like to hear from those who attended the Indianapolis Regional Management Conference. Following a discussion it was decided that instead of holding the regular Christmas party for the master plumbers' children, the auxiliary would give a sum of money to the local journeymen's union to buy coal for needy families of unemployed journeymen. Large quantities of staple articles of food were contributed by the women of this association and given to the agent of the union to give to the families of the unemployed.

Following this, an election of officers was held at which time Mrs. G. T. Watson was re-elected president, Mrs. H. S. Bauer, vice president, and Mrs. Charles F. Trosky, secretary. Mrs. John J. Anderson was elected treasurer.

Cards and bunco followed, at which an enjoyable hour was spent. Those present were: Mesdames John C. Anderson, A. C. Beckemeyer, R. J. Bardy, H. S. Bauer, T. S. Collins, J. A. Diggle, Albert F. Fox, Jos. Lauber, H. R. Meyer, C. F. Trosky, F. E. Trosky, and G. T. Watson.

Akron Auxiliary Elects Officers

On December 9th, at the home of Mrs. R. H. Viall, eighteen members of the Akron Women's Auxiliary were entertained. The business proceedings consisted of adopting two families to provide for at Christmas. An election of officers took place at which time Mrs. O. Hoffman was selected to serve as president, Mrs. Claude Wall, vice-president, Mrs. G. Rauckhorst, secretary, and Mrs. H. P. Bright, treasurer.

It was decided at this meeting that at all future gatherings a copy of "Domestic Engineering" would be brought and the news report of the auxiliary read before the club. Also the matter of sending reports to "Domestic Engineering" was taken up, and this was followed by the collection of dues.

Mrs. R. H. Viall and Mrs. F. Stadtmiller served a delicious luncheon, along with which they served candy and nuts. Yellow chrysanthemums added to the cheerful atmosphere.

Mrs. Oliver Hoffman's home will be the scene of the next meeting, with Mrs. Howard Street playing the part of assisting hostess.

San Diego Auxiliary Gives Dance

The Women's Auxiliary to the San Diego, Calif., Master Plumbers' Association held a social dance beginning at 8:30 p. m., December 17th. There was a very good attendance, and those that did not care to dance were privileged to play 500 and bridge in the ladies' meeting room. Refreshments of coffee and sandwiches were served by the men, with the ladies promising they would do the work the next time. George Radcliff, J. E. Dodd, Edward Rohde and Cal Powers comprised the committee responsible for this lovely time.

New Trade Literature

Folders of Barber Gas Burner Co.

The Barber Gas Burner Co., Cleveland, Ohio, is sending out a folder with the caption "Why Not Enjoy Perfect Heat?" The company's automatic gas burner is described and illustrated in colors. "Your Gas Bills Can Be Reduced" is the title of another folder being sent out by this concern. Gas pressure regulators are described in the latter folder.

Westinghouse Electric & Mfg. Co.

Westinghouse Electric & Mfg. Co., Springfield, Mass., has issued a bulletin describing small power motors, and giving special attention to its sentinel breaker, a compact starting switch that provides overload protection for fractional horsepower motors in connection with oil burners, etc.

Folder of Warren Webster & Co.

Warren Webster & Co., of Camden, N. J., is sending out a circular with the caption, "Boiler protection is now a certainty." The operation and construction of the company's boiler protector are described, and a cross section illustration is given.

Marks' Engineers Handbook Revised

The third edition of the "Mechanical Engineers' Handbook" includes much additional material because of the trends toward higher pressures and temperatures, increasing efficiencies and capacities, etc. Technical discussions of such trends serve to supplement the large amount of physical and test results published. While the book contains over two hundred more pages than did the 1924 edition, its bulk is not increased, as a thinner paper stock has been used.

New steam tables for the high pressure region are included in the added sections of this standard reference work.

The book, which is published by the McGraw-Hill Book Company, 370 Seventh avenue, New York City, is edited by Lionel S. Marks. It has over 2,000 pages, more than a thousand illustrations and diagrams, and is bound in a flexible cover. Its size is 4½ by 7 in.

Folder of American Radiator Co.

American Radiator Co., New York City, has prepared for mailing a four page folder in which is fully described a new cast iron radiator of its production. The folder, presenting the radiator in its several types, unenclosed, semi-enclosed and enclosed, illustrates also the several manners in which it is set. The ratings and dimensions are listed on the back of the folder.

Crane Co.'s Drinking Fountain Catalog

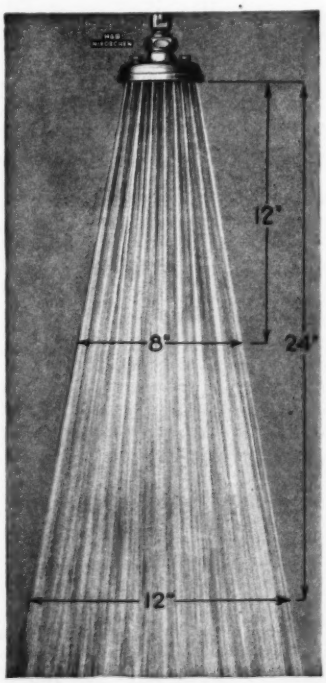
Crane Co., Chicago has just issued a sixteen-page catalog entitled "New Sanitary Drinking Fountains," illustrating and describing this company's raised integral, angle stream, non-squirting bubblers and automatic stream regulators as well as its ice water faucets and drinking fountain trimmings.

Cork for Heat and Cold Insulation

United Cork Companies of Lyndhurst, N. J., has published a sixteen-page catalog describing and illustrating its products, including cork pipe covering for cold pipe lines, corkboard, granulated cork and regranulated cork for heat and cold insulation, cold storages, roofs, tanks, refrigerated rooms, etc.

Wigman Co.'s Calendar

Wigman Co., Sioux City, Iowa, has issued its 1931 calendar, which is printed in several colors and contains a fine reproduction of Norman Rockwell's painting, "Scout Memories." Its dimensions are 18x33 in. A copy of the Scout oath and law is printed under the calendar pad.



This illustrates the increased spray with less water used: due to the Niedecken *radially* drilled shower face.

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The LEADER *in* . . . . . SHOWERS

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The Niedecken Shower Stall is made of continuous ⅛-inch copper bearing steel with the riser *welded* to the bottom—making it positively and permanently leak-proof. The Niedecken Shower Head is *radially* drilled; which scientifically furnishes the usual full volume shower spray, but with much less water used. And the Niedecken Easy-Clean Shower Face illustrated and described here makes possible of a thoroughly clean, unclogged shower face always—the face removed and the sediment cleaned out completely. Get full details of all advanced and exclusive features in Niedecken Showers: Write now to Department D. E.

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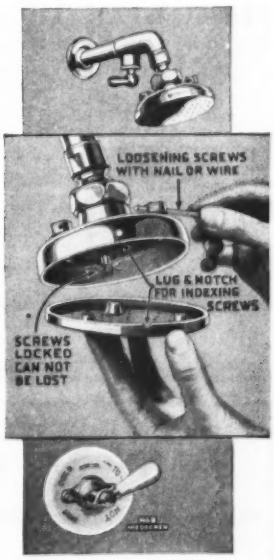

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Easy - Clean Face easily removed to thoroughly clean and just as easily replaced: set of notches guiding for correct placement and alignment as assembled originally.

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FLOOD CONTROL! *for every basement*

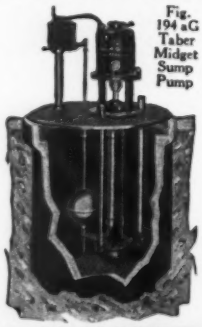

Fig. 194 aG Taber Midget Sump Pump

New LOW PRICES now remove the only possible objection to Taber Sump Pumps.

A Taber Sump Pump installation is Positive Automatic Relief from flooded conditions in basements.

Once installed, Taber Sump Pumps need no servicing . . . thus they will save you money.

Write for description and prices. See Page 923, Domestic Engineering Plumbing and Heating Catalog.

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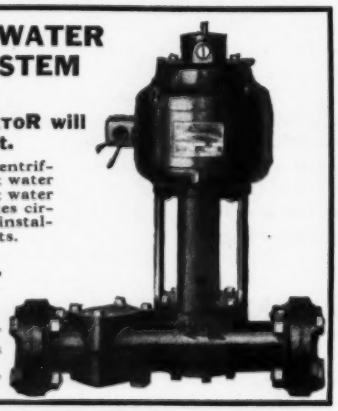
IS YOUR HOT WATER HEATING SYSTEM SICK?

The Janette HYDROLATOR will help you cure it.

This is a motor-driven centrifugal pump for use on hot water heating and domestic hot water supply systems. Stimulates circulation. Corrects faulty installations. Reduces fuel costs.



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Philadelphia, Pa., Real Estate Trust Bldg.
Seattle, Wash., Harrison Sales Co., 314 Ninth Ave. N.

New Business Ventures

Garwood, N. J.—The Tuco Corporation has been chartered, with a capital of 1,250 shares of no par common stock, to establish and operate a heating contracting and service business. The new concern is represented by Wallace R. Foster, local attorney.

Belleville, N. J.—With a capital of $100,000, the Lenox Maintenance, Inc., has been organized and incorporated, to establish and operate a plumbing contracting business. Cyrus H. Vail, attorney, Newark, N. J., represents the new concern.

Garfield, N. J.—The Service Heating and Equipment Company has been organized and incorporated, with a capital of $125,000, to establish and operate a heating engineering and service business. The new concern is represented by Benjamin Greene, local attorney.

Georgetown, Del.—The firm of McGee Brothers, Inc., has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing and heating engineering and contracting business. The new concern is headed by Clarence McGee.

Newark, N. J.—The firm of C. S. Meeks, Inc., has been chartered, with a capital of $10,000, by Charles S. Meeks and associates, to establish and operate a plumbing engineering and contracting business. The new concern is represented by H. Stanley Silver, local attorney.

Long Island City, N. Y.—The Ideal Home Service Co., 3806 Ditmars boulevard, was established January 1 by John Korinek for the purpose of rendering plumbing and heating service. Mr. Korinek for a number of years conducted a similar business in New York City.

New York City—Frank R. Roth and associates have organized and incorporated the firm of Frank R. Roth, Inc., with a capital of $6,000, to establish and operate a plumbing engineering and contracting business in the Bronx. The new concern is represented by S. Sugarman, 643 East Tremont avenue, the Bronx.

Syracuse, N. Y.—With a capital of $10,000, the firm of Clifford O. Gordon, Inc., has been chartered, to establish and operate a heating engineering, contracting and service business. Representing the new concern is S. S. Snyder, Jr., local attorney.

New York City—The Staten Island Standard Plumbing Company has been organized and incorporated, with a capital of $10,000, to establish and operate a plumbing engineering and contracting business in Saint George, Staten Island. C. G. Luloff, Saint George, represents the new concern.

Brooklyn, N. Y.—The Phenix Plumbing and Heating Company has been organized and incorporated, with a capital of $2,500, to establish and operate a plumbing and heating engineering and contracting business. The new concern is represented by I. B. Schirber, 31 Chambers street, New York City.

The Yeomen Kiltie band with Captain E. G. Fry, commander, at the convention of the Oklahoma Master Plumbers' Association

Ossining, N. Y.—Louis Keil and associates have chartered the firm of Louis Keil, Inc., with a capital of $20,000, to establish a heating engineering and contracting business. The local law firm of Holley and Oxenberg represents the new concern.

Milwaukee, Wis.—The L. R. Schmaus Plumbing Company has been incorporated with 250 shares at $100 each. Incorporators are L. R. Schmaus, F. Krysiak, and N. Astrow. Mr. Schmaus is president of the Plumbing and Heating Club of Wisconsin.

Milwaukee, Wis.—The incorporation of the A to Z Plumbing and Heating Company has been announced. The firm is incorporated for 200 shares of common stock at $10 per share. Officers are: W. L. Klinkert, president; E. Klinkert, vice president; C. Human, secretary, and E. Human, treasurer. The firm is located at 2103 Center street, Milwaukee.

Los Angeles, Calif.—The Harry Kohn Plumbing Co. has engaged in the plumbing and heating business at 4659 Melrose avenue.

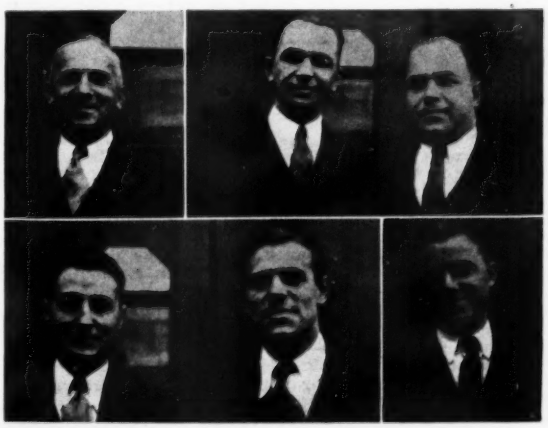
Business Changes

Chillicothe, Mo.—Sam Bowen, who recently purchased the Ben Wheeler Plumbing and Heating Shop on Jackson street, has moved his shop equipment to 25 Clay street. Mr. Bowen was formerly associated with Mr. Wheeler in the plumbing and heating business.

Galion, Ohio—Forest A. Casey has acquired the interest in the plumbing and heating contracting firm of Resch and Casey, formerly held by the late William T. Resch. Mr. Casey has taken into partnership his son, Kenneth, the new firm to carry on the business as heretofore, and will continue to be known as Resch and Casey. The company was established in 1892.

Elizabeth, N. J.—The Desmond-Bird Plumbing Company, Inc., has been organized and incorporated, with a capital of $100,000, to establish and operate a plumbing engineering, contracting business. The new concern is represented by Louis Messing, Jr., local attorney.

New York City—The Levine Plumbing Company, Inc., has changed its corporate name to the Levine Plumbing and Heating Company, Inc. No change in personnel or management was made, the firm expanding its facilities to care for heating contracting and engineering business.



Top row: W. H. Bloom, J. M. Kohlmeier, president, and Geo. T. Kohlmeier, vice president, all of J. M. Kohlmeier, Inc., Long Island City, N. Y. Bottom row: William George, A. Shoepp and A. Isaacs, all of J. M. Kohlmeier, Inc. Photos taken at the recent meeting of the Eastern Supply Association

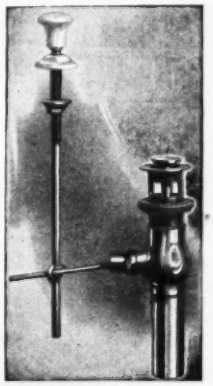
FIRST ON THE BILL!

Oatey Roof Flashings have been in the headline position so long that it just can't be considered a chance—no, sir!

When a flashing or anything else comes as quickly to the top as Oatey did and when it continues to hold top position for so long, there must be, as the cigarette people say, a reason.

And the reason where Oatey Roof Flashings are concerned is just good sound construction, plus good sound materials and design. Sell Oateys for the new jobs or remodeling. From your jobber.

The L. R. OATEY CO.
5500 Walworth Avenue
Cleveland, Ohio



This is the Pop-Up Waste the plumbers DEMAND

"The WISECO"

Simple and Durable

Positive in Action
Built for Quality

J. B. WISE, INC.
Watertown, N. Y.

Your jobber can supply you

EXPANHUB SOIL PIPE

Easy to Caulk—and No Extra Lead is Needed

Better quality throughout makes it possible to caulk joints without fear of splitting hubs. Made according to regular "Book of Standards." No extra lead is needed.

Manufactured and sold by
ALABAMA PIPE COMPANY STRINGER BROS. CO., Inc.
ANNISTON FOUNDRY CO. THE WETTER PIPE CO.
INTERSTATE FOUNDRY COMPANY

STAR NACO

The range boiler built to a standard and not to a price. Sold only to licensed plumbers—STAR-NACO Range Boilers cost a trifle more because of the extra years of service built into them. They offer long satisfaction to your customer and a fair profit to you.

Write for details.

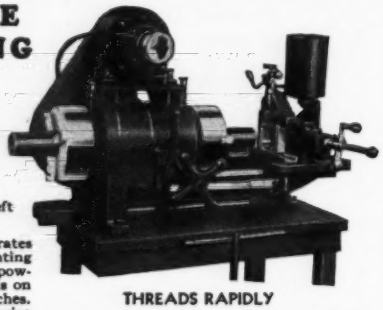
D. D. WESSELS & SONS CO.
DETROIT, MICHIGAN

CUTS PIPE THREADING COSTS!

A full-fledged Portable Pipe Machine for Reaming, Chamfering, Threading and Cutting Off Pipe from ¼" to 2".

Uses any standard make of solid square right or left hand pipe or bolt dies.

Weighs 250 pounds. Operates off either A.C. or D.C. lighting circuits. Is sufficiently powered to drive geared heads on the larger pipe, up to 6 inches. A real pipe machine at a price you can afford. Ask us about it today. Give us the name of your supply dealer.



THREADS RAPIDLY

PEERLESS MACHINE CO., Racine, Wisconsin
Eastern Canadian Representative:
J. Edwin Newsome, 161 Castlefield Ave., Toronto, Ont., Canada

JENKINS
TESTED BRASS FITTINGS

Every Jenkins Brass Fitting is put to a rigid test before it is put on the market. When a fitting passes this test it is absolutely perfect in every detail and ready to stand up on the job under the hardest conditions.

TESTED J BRASS FITTINGS

JENKINS MANUFACTURING CO.
Bloomfield, New Jersey

DOMESTIC ENGINEERING's Retail Advertising Service makes advertising easy for you—all you do is clip the copy from your copy of the paper and hand it, with the cut we send you, to your newspaper. Only $4.20 for 12 illustration cuts. Clip this, attach your check for $4.20 and mail today.

DOMESTIC ENGINEERING
1900 PRAIRIE AVENUE, CHICAGO, ILLINOIS

Pipe —— Lines
Connected by LYT

PERFECT

Teacher: "Parse the word kiss."

Pupil: "This word is a noun, but it is usually used as a conjunction. It is never declined and more common than proper. It is not very singular, in that it is usually used in the plural. It agrees with me."

G. R. S.

PERHAPS ON THE MORNING OF JANUARY 1

Wife: "What do you mean coming home this time of morning?"

Husband: "My dear, it's just 12 o'clock."

Wife: "It's past 3 o'clock."

Husband: "Have it your way, dear, if you will, and believe a 98c clock instead of me."

A patient in a hospital for the insane informed the new doctor that he was much better liked than the last one. The new physician was, of course, flattered, and asked: "How's that?"

"Oh," said the patient, "you seem more like one of us."

LEIGHTON'S GLOOM CHASER.

PROBLEMS OF ENGLISH

If an S and an I and an O and a U,
With an X at the end spell Su,
And an E and a Y and an E spell I,
Pray what is a speller to do?
Then if also an S and an I and a G
And H E D, spell side,
There's nothing much else for a speller to do
But go and commit siouxeyesighed.

N. T. P., Oakland.

TACT

"Now that you've seen my son and heir, which side of the house do you think he resembles?" asked the proud young father.

His Bachelor Friend: "Well, his full beauty isn't developed yet, but—do you really think he looks like the side of a house?"

IN VAUDEVILLE

Heinie: "Really, your argument with your wife last night was most amusing."

Gustav: "Yeah, and when she threw the ax at me I thought I'd split."

A centenarian in Germany is said to live on onions alone. Naturally he would live alone.

CIVIC PRIDE

"Down where I live," said the Texan, "we grow pumpkins so big that when we cut one my wife uses one-half of it as a cradle."

"That's nothing," replied the Chicago man. "A few days ago we found two full grown policemen asleep on a beat."

P. G. N., Chicago.

WHY WE NEED FINANCE COMPANIES

Jones: "How do you spend your income?"

Smith: "About 30 per cent for shelter, 30 per cent for clothing, 40 per cent for food and 20 per cent for amusement."

Jones: "But that adds up to 120 per cent."

Smith: "That's right."

TYPING TIPS.

History, records a cynical editor, tells of few women who laughed at their husband's jokes. Those few had beautiful teeth.

"Help your wife," says a famous domestic expert. "When she mops up the floor, mop up the floor with her."

The first last line for the new year can read only one way: Happy New Year.

L Y T

Bath a Day Movement

In the "Plumbing and Heating Merchandising" feature section in this issue we carry several stories of the efforts being made by associations to assist their membership in selling more plumbing and heating. These are groups with some experience—and particularly groups that have already done the educational work which is necessary before any real sales effort can be made. Their campaigns reap the rewards made possible by the preliminary work.

177

Any association that is alert to its possible service to its members will find in the Bath a Day Campaign an educational force that will lay a sure foundation for definite selling efforts. It is familiar to the country at large because of the slogan, "A bath a day keeps you fit every way." In 177 cities and towns in the United States the booklet "The Story of the Bath" has been placed in the schools by individual master plumbers, and by associations, which recognized the value of educational work.

If there is a group anywhere looking for something that can be aggressively pushed, we suggest getting in touch with us for full particulars as to the Bath a Day Campaign, and for a complimentary copy of "The Story of the Bath."

Little Sentences That Sell

Write one of these BLACK BOARD EPIGRAMS on your window or bulletin board each day. Many master plumbers and heating contractors find them real business getters.

Running up bills soon runs a man's reputation down.

* * *

A fur coat does not always warm the heart.

* * *

A square man is seldom a rounder.

* * *

Picking winners is usually a losing game.

* * *

If a vessel is a boat a blood vessel must be a lifeboat.

* * *

It's a poor bird dog that fails to carry his point.

* * *

It is the rolling wheel that gathers the most punctures.

* * *

The barber is the only man who does headwork with his hands.

* * *

To find work, go to work and look for it.

* * *

It is almost as easy to find trouble as it is to make excuses.

* * *

Occasionally a man who runs for an office wins in a walk.

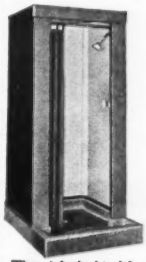
* * *

Fast friends should be slow to disagree.

◆

Long Island City, N. Y.—With a capital of $10,000, the Hunts Point Plumbing and Heating Corporation has been organized and incorporated, to establish and operate a plumbing and heating engineering and contracting business. The new firm is represented by M. J. Levie, 10 East Fortieth Street, New York City.

The Plumber's JOB-the Plumber's PROFIT



The Admiral with extended receptor and curtain

Fiat Shower Bath Compartments and Shower Doors

Whether building or remodeling . . . FIAT Shower Bath Compartments and Shower Doors mean double profits for you. Profit on the sale and Profit on the installation.

FIAT Shower Compartments are made in many sizes and designs . . . are of knock-down construction and can be installed on rough or finished floors. Permanent . . . absolutely leak-proof. Easy to install.

Write for full particulars.

FIAT METAL MFG. COMPANY
1211 Roscoe St. Dept. 61 Chicago, Ill.

ARMSTRONG
PRESSED STEEL
Portable VISE STAND
4 Leg and 3 Leg Models

Lighter, more practical. Truly portable, yet strong and husky. Tops, gas welded into one piece. Wide spread. Has dandy pipe bender—great seller—properly priced.

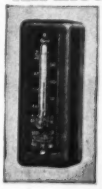
Order from your Jobber

The ARMSTRONG MFG. CO. (FOUNDED 1888) OF BRIDGEPORT CONN.

Send for Booklet "B"

only $48 installed

All Electric—plus 4 Exclusive Features



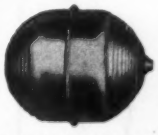
1 Automatically checks furnace in event of electrical current break.
2 Automatically re-engages after fueling.
3 Gradual operation of draft and damper. No banking up of gas or smoke.
4 No weights, electric motor, clock or dry batteries—nothing to oil.

Simple to install. Thousands are in use. Listed as standard by Underwriter's Laboratories.

Dealer Price $22.75 f.o.b. Quincy, Ill.

SHEER COMFORT heat Regulator

Ask your jobber or write
H. M. Sheer Co., 211 Hampshire St., Quincy, Illinois



14'x5' Oval Float

NO-SOL COPPER FLOATS

No-Sol Floats incorporate all features necessary to the satisfactory performance of a tank float.

Each float is individually tested and guaranteed.

5' Round Float

The AYLING & REICHERT CO.
3047 N. Erie St. Toledo, Ohio

Bell Appreciates Sanitation's Worth

No. 608
A type used in this building—automatic stream control and two-stream projector.

In the Cincinnati Telephone Building, Halsey Taylor Drinking Fountains were chosen because this great company appreciates the worth of sanitation in all their structures, and it is only logical that for the drinking fountains they should specify "Halsey Taylor." « » The Halsey W. Taylor Co., Warren, O.

HALSEY TAYLOR
Drinking Fountains
THE SPECIFICATION FOR SANITATION

A Plumber Named It!
THE FIRST ONE WHO SAW OUR NEW FIREPOT
Water Heater
SAID:
"HOT DOG"!

"That's the Shape I Want, and With No Leaky Joints!"

No. 1 Iron	$1.25
" 2 "	1.45
" 1 Brass	2.75
" 2 "	3.50

20 to 60 Gal. Cap. ¾" or 1" Tappings 9" Centers

TO WHOLESALERS!
Hav'em You'll Show'em!
Show'em You'll Sell'em!

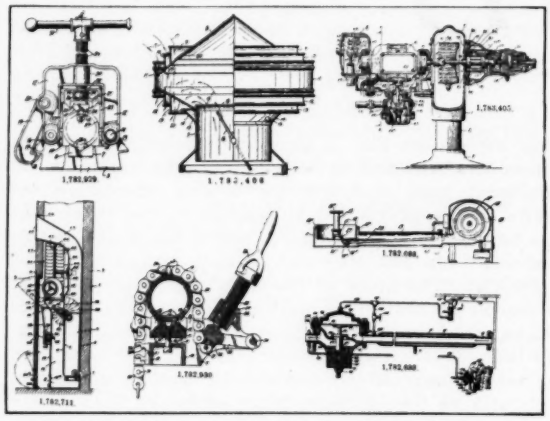
CAST BY

The RICHMOND FOUNDRY & MANUFACTURING CO Inc.
RICHMOND, VIRGINIA
"A DEPENDABLE SOURCE OF SUPPLY"

PATENTS

Heating Department

1,782,929. Vise. Tideman M. Lilleberg, Chicago, Ill., assignor to Nye Tool & Machine Works, Chicago, Ill., a corporation of Illinois.



1,782,930. Vise. Tideman M. Lilleberg, Chicago, Ill., asignor to Nye Tool & Machine Works, Chicago, Ill., a corporation of Illinois.

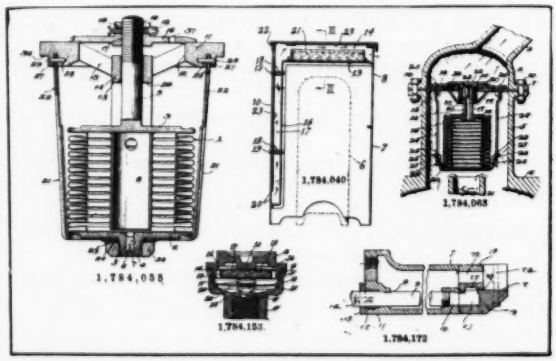
1,782,668. Oil Burner. William W. Stuart, Des Moines, Iowa, assignor to Franklin Oil Heating Incorporated, Columbus, Ohio, a corporation of Ohio.

1,782,688. Refrigerating System. John F. Hoffman, Omaha, Nebr., assignor to Baker Ice Machine Co. Inc., Omaha, Nebr., a corporation of Nebraska.

1,782,711. Concealed Unit for Heating and Ventilating. Michael J. Callahan, New York, N. Y.

1,783,405. Liquid-Fuel-Burning Device for Domestic Purposes. Philip A. Celander, Bloomington, Ill., assignor to Williams Oil-O-Matic Heating Corporation, Bloomington, Ill., a corporation of Illinois.

1,783,406. Ventilator. Stephen E. Cibulas, Bridgeport, Conn.



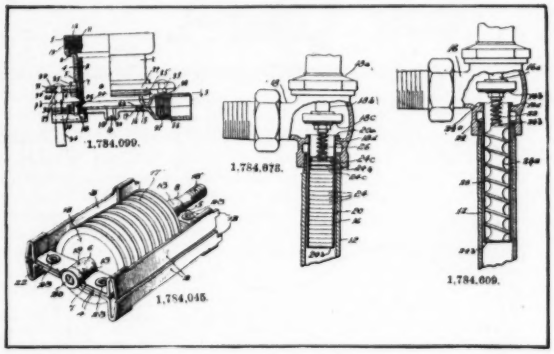
1,784,040. Radiator Cabinet. Joseph H. Bryan, Birmingham, Ala., assignor of two-thirds to Walter L. Simpson, Birmingham, Ala.

1,784,063. Temperature Regulator. Jean V. Giesler, Knoxville, Tenn., assignor to The Fulton Sylphon Company, Knoxville, Tenn., a Corporation of Delaware.

1,784,055. Thermostatically-Controlled Valve Mechanism. Jean V. Giesler, Knoxville, Tenn., assignor, by mesne assignments, to The Fulton Sylphon Company, Knoxville, Tenn., a Corporation of Delaware.

1,784,173. Oil Burner. George H. Bowler and Otohei Nasu, Las Vegas, Nev.

1,784,153. Steam Trap. Joseph Messmer, Kirkwood, Mo., assignor to Messmer Brass Company, St. Louis, Mo., a Corporation of Missouri.



1,784,099. Diestock. Ralph E. Hyde, Cleveland, Ohio, assignor to The Oster Mfg. Company, Cleveland, Ohio, a Corporation of Ohio.

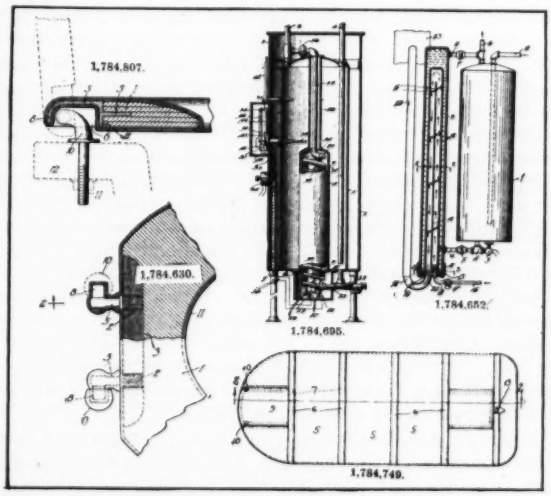
1,784,673. Adjusting Unit for Heating Systems. Albert J. Loepsinger and Ira W. Knight, Providence, R. I., assignors to General Fire Extinguisher Company, Providence, R. I., a Corporation of Delaware.

1,784,609. Heating System. Albert W. Moulder, Warren, Ohio, assignor to General Fire Extinguisher Company, Providence, R. I., a Corporation of Delaware.

1,784,045. Thermostat Support. Thomas R. Clark, Knox County, Tenn., assignor to The Fulton Sylphon Company, Knoxville, Tenn., a Corporation of Delaware.

Plumbing Department

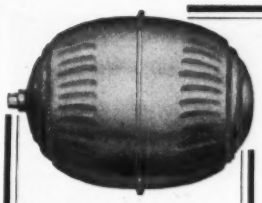
1,784,630. Toilet-Seat Hinge. George Johnson, Muskegon, Mich., assignor to The Brunswick-Balke-Collender Company, Chicago, Ill., a Corporation of Delaware.



1,784,652. Water Heater. Edwin L. Badger, Spokane, Wash., assignor to Doherty Research Company, New York, N. Y., a Corporation of Delaware.

1,784,695. Electric Water Heater. Walter S. Lang, Kendallville, Ind., assignor to The Lang Electric Mfg. Company, Kendallville, Ind., a Corporation of Indiana.

1,784,749. Bathtub Attachment. Walter Rafalski, Philadelphia, Pa.



Federal Floats by Reichert

For Heavy Service

Where the work of the float is going to be unusually severe (in factories, public buildings, schools, etc.) install the Federal Float, a Reichert product. It has been designed for really tough service.

The Reichert Float & Mfg. Co.
2238 Smead Ave., Toledo, Ohio

CHALLENGE BRAND NIPPLES RUST PROOF

Wrought Iron, Steel, Brass, Copper

Whatever your need—there is a Nipple included in the CHALLENGE LINE that fits it.

Every Challenge Nipple is coated in rust resisting drying oil that retards oxidization.

Every CHALLENGE BRAND NIPPLE is perfectly threaded and cut to EXACT length. Try CHALLENGE BRAND NIPPLES.

Order them by name, from your jobber.

FRICK-REID SUPPLY CORPORATION
Sandusky & Robinson Sts. (Nipple Division) N. S. Pittsburgh, Pa.

NEVER-SPLIT AND EVERNU

QUALITY TOILET SEATS

Sheet Covered—Hard Rubber—Varnished—Sprayed—All Models
All Colors—All Hinges—Patented and Guaranteed

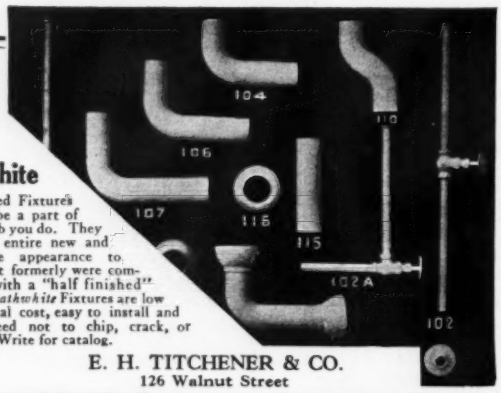
"NEVER-SPLIT" (Hidden Screw Construction) and "EVERNU" (Hard Rubber) Seats are approved by leading architects, builders and dealers everywhere. Get prices from your jobber. Write us for new catalog, cross sections and sales helps.

NEVER-SPLIT SEAT CO., Evansville, Ind., U. S. A.

Just So It's NIBCO.

It makes no difference whether you purchase Tank Trims or Copper Tube Fittings—if they bear the Nibco trade mark, you are assured of complete satisfaction. Nibco Tank Trims are specified as standard equipment by leading potteries and enamel ware manufacturers. Nibco Fittings are endorsed by leading plumbers, wholesalers and copper tube mills. Both are known the world over for perfect performance. If you are not already familiar with Nibco Products and their advantages, send for complete information today. Just ask for Bulletin A-300.

NORTHERN INDIANA BRASS COMPANY
Elkhart, Indiana



Bathwhite

Enameled Fixtures should be a part of every job you do. They give an entire new and complete appearance to jobs that formerly were completed with a "half finished" look. *Bathwhite* Fixtures are low in original cost, easy to install and guaranteed not to chip, crack, or craze. Write for catalog.

E. H. TITCHENER & CO.
126 Walnut Street
Binghamton, N. Y.

1903-1931

Over a Quarter Century of Service

□ □ □

A-1 QUALITY ACCURATE GAUGE PROPER TAPER
CORRECT NUMBER OF THREADS
PROMPT SHIPMENT OF ORDERS ECONOMICAL PRICES

All backed by twenty-seven years of manufacturing experience are assurances of your satisfaction with

"RAVENA" IRON PIPE FITTINGS

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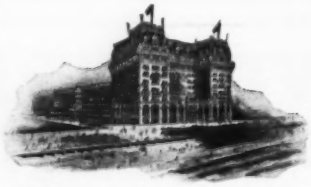
RAVENA IRON CO., Ravena, N. Y.

Sensible Rates



Garage Attached

The Breakers

ON THE OCEAN FRONT

Atlantic City — N. J.

Modern in construction, luxurious in appointments and convenient to all piers and amusements.

St. Louis'

FINEST
HOTELS

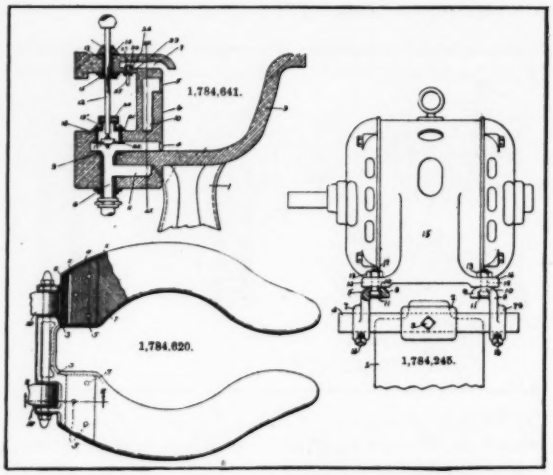
Mayfair — 8th and St. Charles. The quiet atmosphere of an exclusive club. *400 Rooms—Bath in each Room — Rates from $3.00.*

Kings-Way — Kingshighway at West Pine. Opposite beautiful Forest Park. *Room and Bath for 2 from $4.00.*

Lennox — 9th and Washington, Saint Louis' newest, smartest. Tub and shower in every room. *400 Rooms — Rates from $3.00.*

Operated by Heiss Hotel System

1,784,807. Toilet Seat. Byron C. Booth, Muskegon Heights, Mich., assignor to The Brunswick-Balke-Collender Company, Chicago, Ill., a Corporation of Delaware.



1,784,641. Lavatory or Washstand. William H. Oldfield, Rochester, N. Y.

1,784,245. Pump-Motor Support. Philip A. Myers, Ashland, Ohio, assignor to The F. E. Myers & Brother Company, Ashland, Ohio, a Corporation of Ohio.

1,784,620. Toilet Seat. Byron C. Booth, Muskegon Heights, Mich., assignor to The Brunswick-Balke-Collender Company, Chicago, Ill., a Corporation of Delaware.

1,784,264. Pipe-Vise Stand. Lee C. Young, St. Louis, Mo., assignor to Western Wire Products Co., St. Louis, Mo., a Corporation of Missouri.

◆

Several Classes of Dust

Few of us have a clear understanding of what is meant when we are told that there are from 5,000 to 20,000 dust particles per cubic foot of air in large cities. The "American Society of Heating and Ventilating Engineers" has divided the various forms of atmospheric pollution into dusts, fumes and smokes. Each form is defined on the basis of weight and average size. Here, too, we find it impossible to visualize these classes because we are not accustomed to thinking in terms of such small units. What we need is a clearer picture of the dust problem. To get such a picture it is necessary to go back to the beginning. What is atmospheric dust? How does it originate? What is the effect of such dust on human beings? What is the effect on industry and weather? When we have some knowledge of the answer to these and similar questions regarding the "cobwebs in the sky," or atmospheric dust, we will not only know why air must be cleaned and filtered, but also what is the value of particular types of cleaning equipment now on the market.

Climatologists tell us that atmospheric dusts fall into eight classifications. They are mineral, vegetable fibers, pollen, spores and bacteria, soot and unburned carbon, salt particles, volcanic dust or ash and meteoric or cosmic dust. The first five types of dusts reach the air from the earth by means of winds or air movement. The second and fifth types of dust particles usually find their way into the air by means of convected heat from such sources as ranges, boilers, forest fires, automobiles. The last three types of dusts are seldom considered when air cleaning problems arise, although they represent, at times, a large portion of the dust in the air.

CLASSIFIED ADVERTISING

8 cents for each word including heading and address. Count seven words for keyed address. Minimum $2.00 for each insertion.

One inch $4.00. Cash must accompany order. Copy should reach us eight days in advance of publication date.

Situations Open

SURE QUICK COMMISSIONS

Salesman calling on engineering departments, hotels, industrials, hospitals, colleges, etc., to sell quality plumbing repair parts. State rights given. Straight weekly commissions paid. Regular or side line. Address Key 575, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

MONEY-MAKING PROPOSITION FOR salesmen calling on plumbing and heating trade. New non-conflicting item. Full or part time. State age, territory covered. Car helpful. Reply confidentially E. C. Thiel & Co., 3731 N. Clark St., Chicago, Illinois.

REPRESENTATIVES WANTED IN leading cities to handle highest grade line of radiator shields and radiator cabinets. Our representatives earn $500.00 to $1,000.00 per month the year around, above expenses. Full selling plan furnished. Address Key 256, "Domestic Engineering," 1900 Prairie Ave., Chicago.

WONDERFUL MONEY-MAKING EXclusive or Side-line proposition for salesmen calling on plumbing dealers. Write us today. KOIL-LES HEATER COMPANY, Geneva, Illinois.

SALESMAN — MANUFACTURER OF boilers and radiation with well located branches offers attractive commission proposition to salesman. Address Key 573, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

Situations Wanted

PLUMBING AND HEATING SUPERINtendent and engineer, first class, thoroughly familiar with all classes of large and small work, desires to make a change soon. Address Key 569, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

SALESMAN, THIRTY-SIX, MARRIED and live-wire, ten years' sales experience pipe and plumbing supplies, wants position with manufacturer. Sales promotion, architects or selling to jobbers. Philadelphia or New York territories. Salary. Good references. Address Key 577, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Partners Wanted

WANTED, BY ONLY SUPPLY HOUSE in city, near Boston, an experienced man for partner. Owner has interests in other business. Suitable warehouse and showroom facilities, low overhead. Would consider being branch of other organization. B. Wolk, P. O. Box 193, Waltham, Mass.

Lines to Handle

MANUFACTURERS' REPRESENTAtives wanted to sell old established line of floor drains to the wholesale plumbing trade on a commission basis in the following territories: Washington and Oregon states, California, Minnesota and Wisconsin, New York state (New York City excluded), Western Pennsylvania, Ohio, Illinois (Chicago excluded), Indiana and all the southern states. Address Key 571, "Domestic Engineering," 1900 Prairie Avenue, Chicago, Illinois.

For Sale

FOR SALE—MANUFACTURING plant equipped for manufacture of sanitary enameled iron ware; such as bath tubs, lavatories, kitchen sinks, etc. Could readily be converted into general foundry and machine works, if desired. Well located in eastern section of middle west. Shipping facilities embrace both rail and water. Labor conditions good. Financial assistance, to some extent, could be obtained. Address Key 549, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

FOR SALE—PLUMBING BUSINESS IN good town in N. E. Nebraska doing a good business. Owner has to change climate. Address Key 578, "Domestic Engineering," 1900 Prairie Avenue, Chicago.

Miscellaneous

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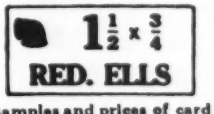

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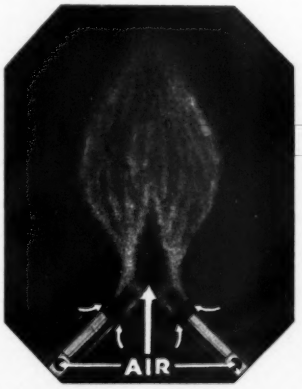
BARBER AUTOMATIC GAS BURNERS

Are Most Economical

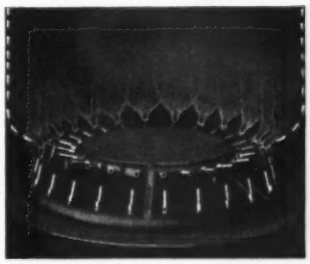
MOST of the reasons for BARBER economy are unique and outstanding. They are the result of new principles developed by BARBER engineers. They make for easier selling and for far more satisfactory heating by gas, the ideal fuel.

First, complete combustion of every heat unit in the gas, coupled with a much higher flame temperature than ordinary burners, because of the two flames impinging and fed with the required amount of air. Only BARBER has this super-combustion principle burner.



The super-hot BARBER twin-flame.

Second, the BARBER principle applies the flame with a "scrubbing" action directly to the heating surfaces at the proper level of furnace or boiler so that all the heat is delivered to registers or radiators, without waste.



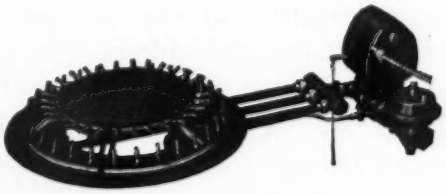
The flames are applied directly against the heating surfaces.

Third, the BARBER Gas Pressure Regulator which keeps the gas at an even, efficient pressure at the burners, thus preventing waste of gas.

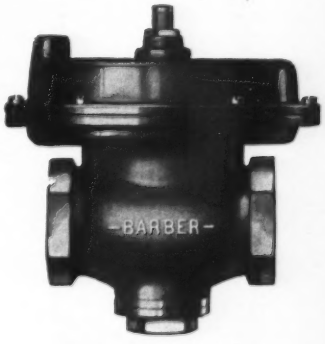
Last, the room thermostat which controls the burner operation to maintain the temperature you want, and so eliminates waste of gas through over-heating.

These make the cost of heating a home with gas compare favorably with the cost of coal. And with present low prices on fully Automatic BARBER Gas Burners, every medium size home in your community can afford to heat with gas.

Write for our catalogs and special sales literature. We shall be glad to co-operate with you to the fullest extent.



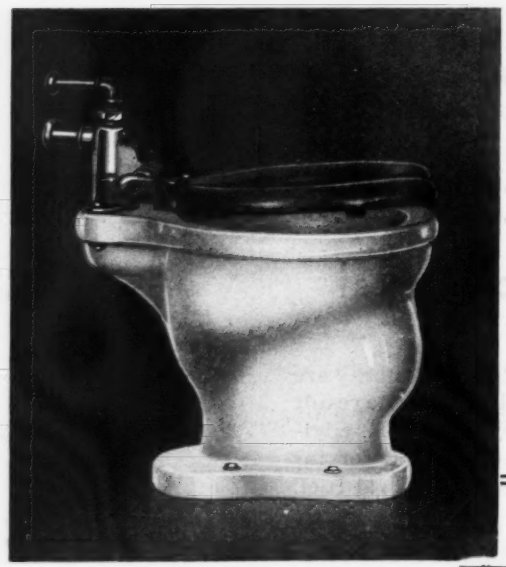
BARBER Automatic Gas Burner No. 330-B, with motor valve



The BARBER Gas Pressure Regulator is a reliable and accurate precision device.

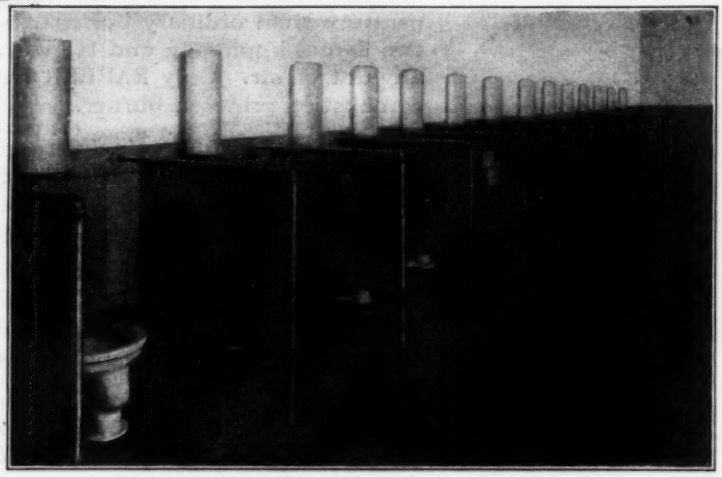
BARBER *Automatic* JET GAS BURNERS

THE BARBER GAS BURNER CO., 3702 Superior Ave., Cleveland, Ohio



Vogel Number Ten-A Seat-Action Closet Combination with tank concealed. Number Ten has exposed tank.

THE STORY OF VOGEL NUMBER TEN AND TEN-A CLOSETS IS NOW BEING TOLD EVERY MONTH TO THE EXECUTIVES OF THE 70,000 LEADING PLANTS IN THE UNITED STATES . . .



A typical installation of Vogel Number Ten Closets with exposed tanks, at the plant of Pusey & Jones, Wilmington, Del.

THE men who have the first say in the purchase of plant equipment are now reading about VOGEL Number Ten and Ten-A Closets.

We are telling them about the endurance test—the fact that this Number Ten Closet has now flushed more than 250,000 times and not even a washer has been renewed—that VOGEL Closets can be washed down with live steam—that they seldom if ever require adjustments—and about the dependability of VOGEL Products for more than 24 years.

This means more profits and more jobs for you in 1931. Ask us for literature to send to your customers, imprinted with your name and address.

See inside front page for VOGEL Frost-Proof advertisement. Also see pages 122 and 123.

JOSEPH A. VOGEL COMPANY
Wilmington, Del. *St. Louis, Mo.*

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